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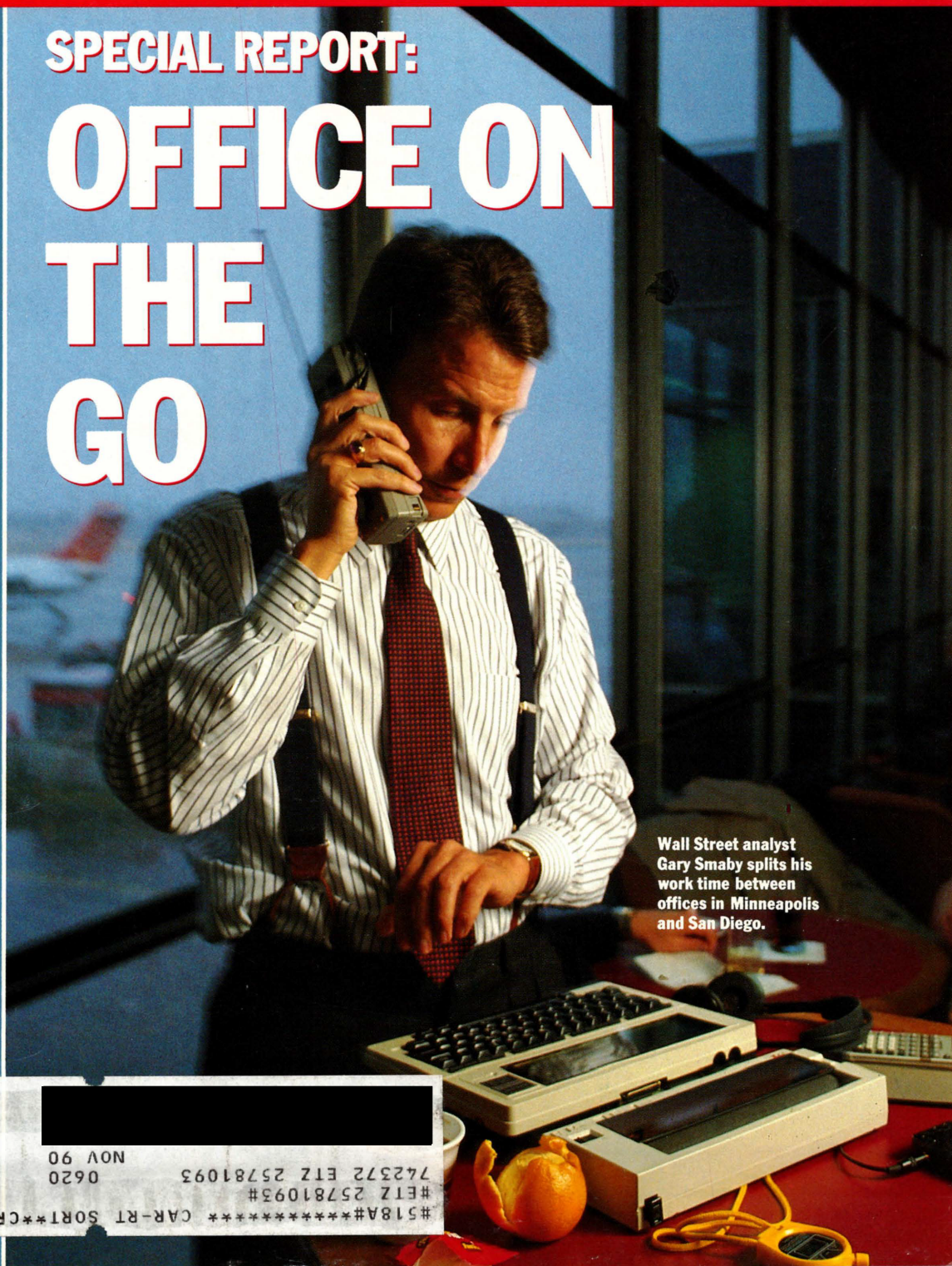
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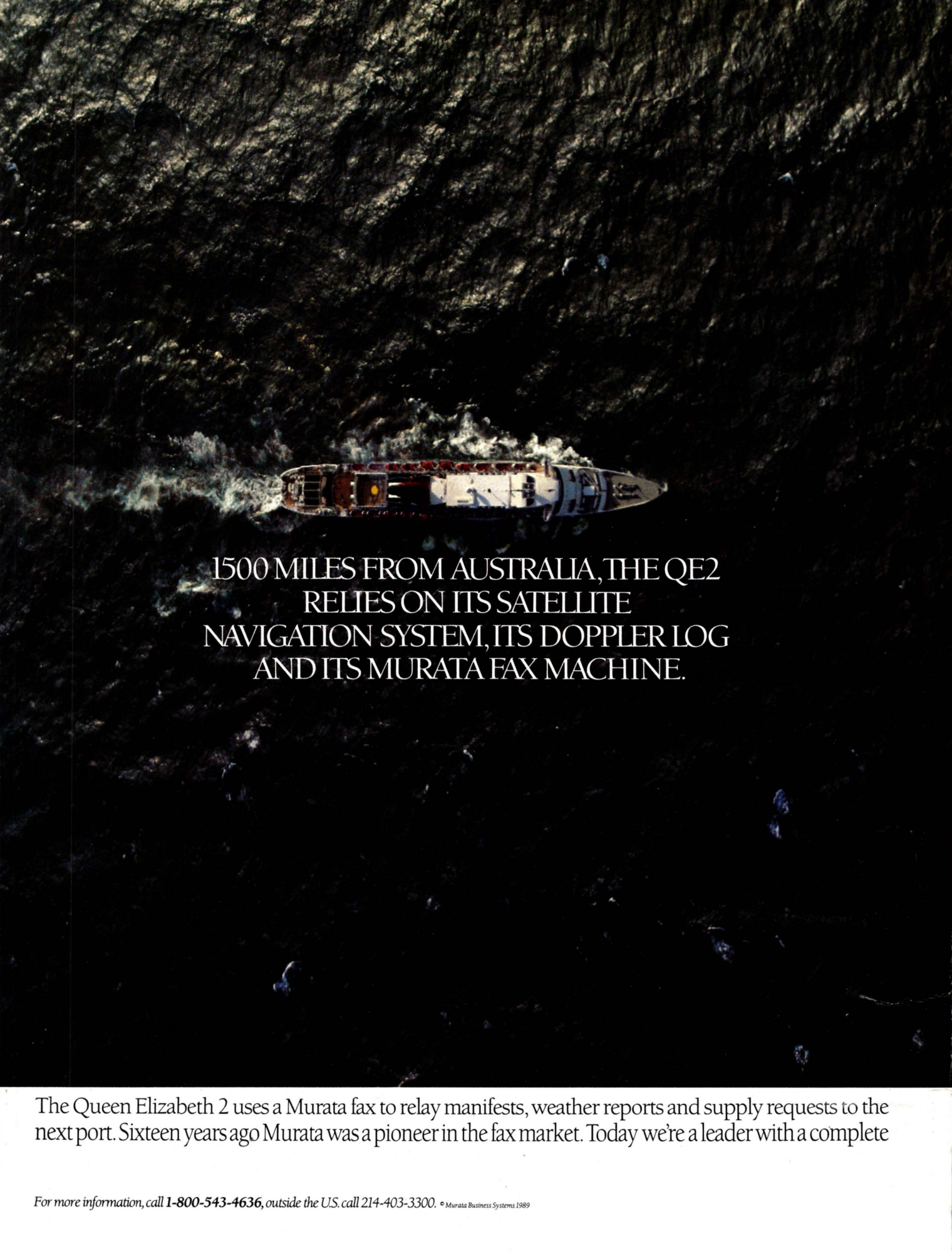
OFFICE ON THE GO



Wall Street analyst Gary Smaby splits his work time between offices in Minneapolis and San Diego.

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An aerial photograph of the Queen Elizabeth 2 ship sailing on the ocean. The ship is white with a red funnel and is moving from left to right, leaving a white wake. The ocean is dark and textured with small waves. The text is centered over the ship.

1500 MILES FROM AUSTRALIA, THE QE2
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CIRCLE READER SERVICE 58

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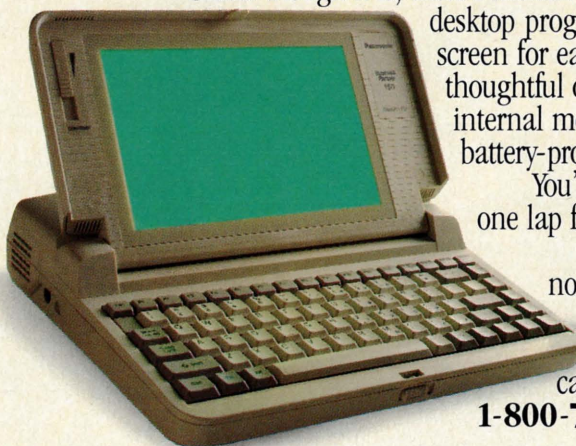
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FEATURES

SPECIAL REPORT

Office on the Go: Work Where You Want, When You Want, the Way You Want **Page 37**

With the explosion of full-featured portable equipment in every category, the business person's options for taking the show on the road are wide open. This special report will help you focus on your equipment needs so you can travel light and smart, update you on the current state-of-the-art cellular-phone technology, and give you a comprehensive look at the new breed of portable computers.



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TECHNOLOGY

Survive System Breakdowns **Page 49**

When it comes to protecting your valuable and oh-so-vulnerable data, the key to avoiding disasters is guarding the hard-disk drive and floppy disks. Here are some tried-and-true methods for preventing disk problems, dealing with power vagaries, maintaining your drives, diagnosing your disks, and more. *Plus:* A roundup of disk-maintenance software.

HOW-TO

Publish Your First Book **Page 54**

One of the best reasons to write a book is to bolster your image as an expert and add credibility to your business. This insider's look at bringing your ideas and expertise to the printed page shows you how to cultivate ideas, start writing, and get an editor's attention. Many other inner secrets of the writing trade are also revealed. *Plus:* Marketing your manuscript and a writer's resource list.



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PROFILE

Building a (\$2.5 Million) Business **Page 58**

Ten years ago, Evans and Linda Bruner left high-paying corporate jobs to start a computer-consulting business. Here, you'll find out how they grew a \$2.5 million company by following a series of simple steps: building on background, writing and following a business plan, incorporating, keeping a low overhead, establishing marketing niches, and more.

SURVEY

Annual Reader Survey: Win a Fax for Your Facts **Page 60**

This annual survey is your chance to let us in on who you are, what you're up to, what you think about us, and what you'd like to see happen with your business.

PRODUCTS

Product Previews **Page 18**

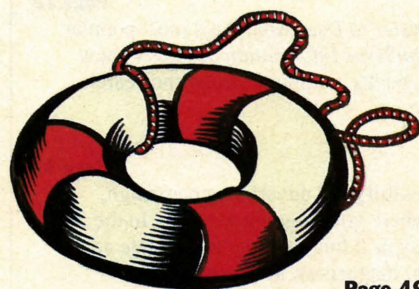
First looks at new hardware, software, and office products by HOME-OFFICE COMPUTING's editors. *This month:* Font-generation software from ZSoft, Sharp's new plain-paper fax machine, and the Wiz input device.

Hardware Reviews **Page 62**

Computer: Full-bore computing with the Hertz 386/25. *Laser Printer:* The affordable excellence of the OkiLaser 400. *Fax Machines:* Two top-flight models: Ricoh's RF9200 and Murata's M1800. *Answering Machine:* Code-A-Phone 2880.

Software Reviews **Page 68**

Reviews of *Word for Windows* and *Ami Professional*, two powerful Windows-based word-processing programs, and *DAtabase*, a Macintosh desk-accessory database. Capsule reviews of *Graph-It!*, *Readability Plus*, and *Diskette Manager III*. *Plus:* Learning and leisure reviews of *Where in Time Is Carmen Sandiego?*, *Super Solvers Midnight Rescue*, *The Puzzle Gallery: At the Carnival*, and *Welltris*.



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Clinic Page 20
Answers to Readers' Questions. HOME-OFFICE COMPUTING's editors answer readers' questions about fax boards and plain-paper fax machines, getting around the PC's 640K memory barrier, and adding PostScript capability to a LaserJet.

Working Smarter Page 34
Move Your Mouth to Build Your Business. Word-of-mouth marketing could be more effective than traditional advertising in promoting your business. Here, columnists Paul and Sarah Edwards offer tips for networking your way to the top.

Workstyles Page 88
How to Commute at the Speed of Light. Recent addresses from President Bush have propelled telecommuting into the national spotlight. Senior editor Nick Sullivan, who hopped on the work-at-home bandwagon years ago, shares his views on telecommuting developments.

DEPARTMENTS

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Up Front Page 12

News, advice, tips, and a shot of humor on computing, using home-office technology, and running a home business. *This month:* New tax rulings on the home-office deduction, price increases on first-class postage, technical help from users' groups, equipment for less from Uncle Sam, Best Software Awards from the Software Publishers Association convention, and more.

Desktop Publishing Page 22

Details Can Make or Break Your Printed Pieces: Part 2. Desktop publishing hasn't really changed the face of the printed page—the object is still to present ideas in an attractive, readable manner. Here are tips on using some of the basics of page design—rules and lines, boxes, text wrapping, and white space—to draw readers into your work.

Software Solutions Page 24

There's Hope for Organizing the Ins and Outs of Your Life. When it comes to picking the right software to help you keep on top of all the details of your business, flexibility is probably the most important criterion. *Current*, a new package from IBM Desktop Software, combines seamless integration with an intuitive Windows-based operating scheme to deliver a powerful personal information-management tool.

Telecomputing Page 28

Point-and-Click Software Makes CompuServe Easier to Use. America's most popular on-line service is now easier to use than ever. *CompuServe Information Manager*, new software that automates CompuServe's procedures, packs communications and search features into a spiffy, easy-to-use graphical package.

Business 101 Page 32

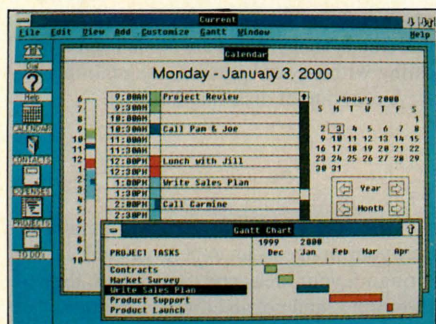
Catch Their Eyes with Print Ads. To start a successful print advertising campaign, you've got to figure out what you want to say and where you're going to say it. In the first part of this series on advertising for small business, you'll find out how to evaluate ad-placement opportunities in yellow-pages directories, magazines, and newspapers.

Home-Office Shopper/Classifieds Page 82

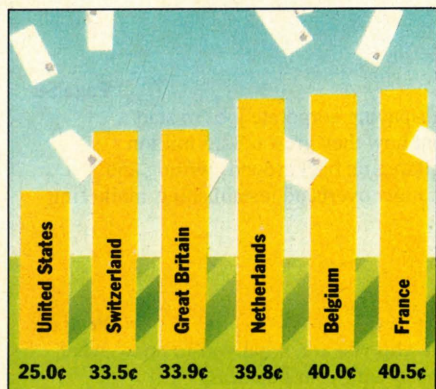
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HOME-OFFICE COMPUTING (ISSN 0899-7373) is published monthly by Scholastic Inc., 730 Broadway, New York, NY 10003. Subscriptions: in U.S., 12 issues for \$19.97; Canadian possessions and U.S. possessions add \$6.00 per year for postage; foreign residents add \$8.00 per year. Printed in U.S.A. Copyright © 1990 by Scholastic Inc. All rights reserved.

POSTMASTER: Send address changes and notice of undelivered copies to HOME-OFFICE COMPUTING, P.O. Box 53561, Boulder, CO 80322-3561. Known office of publication, Scholastic, Inc., 351 Garver Rd., Box 2700, Monroe, OH 45050-2700. Second-class postage paid at Monroe, OH 45050-9998 and additional offices.

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And because Samsung's quality testing is so exhaustive, your Samsung fax machine will be right there, doing its job—time after time after time.



CIRCLE READER SERVICE 59

There's gold Now, Quarterdeck's new

Memory is gold.

And like gold, some of it is hidden away inside your computer. For years, we've been working toward putting it all under your control. And now we can.

Now you can make today's more powerful programs run without giving up network and mouse drivers and TSRs.

Introducing Quarterdeck Manifest—the memory analyzer

Many PC users know there are nuggets of memory sitting unused in most PCs. But those little pieces of memory can add up to 130K!

That's why Quarterdeck Office Systems, publisher of DESQview, developed a new utility that helps you find and use this memory. It's called Manifest. And it does for memory what PC Tools does for disks. For very little money.

Quarterdeck's seven years of memory expertise made Manifest

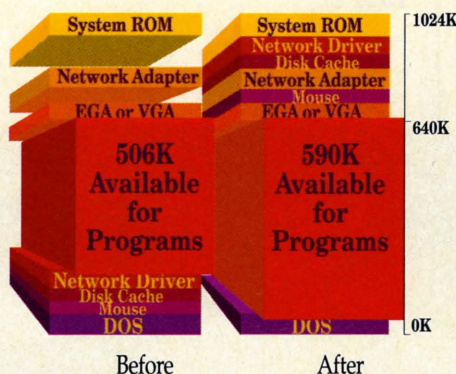
Manifest guides you deep inside your PC.

It locates unused (or underused) memory and suggests where you could load networks, buffers, mouse drivers, TSRs and other utilities to increase performance. It even analyzes what type and amount of RAM you have available, and which portions of your memory are faster.

Administering a number of PCs? Manifest's diagnostic and reporting capabilities reduce technical support time. It not only identifies problems but helps to solve them.



Manifest shows you how your memory works. Here's the first megabyte of RAM, showing unused areas.



Your current memory is full of holes. Our tools can fill blocks of unused addresses between 640K and 1024K to free up memory your programs can use.

Manifest shows you the contents of AUTOEXEC.BAT and CONFIG.SYS files. That can be a big help when diagnosing problems. Manifest tells you all about your hardware, too—from your cpu type to what boards you have installed. Manifest even tests memory speed. And it runs benchmark tests on expanded

memory boards so you can make informed buying decisions.

You won't need a PhD to understand what you're doing. Manifest has an interactive 'manual' that tells you how to use the program and what benefits you'll get.

And unlike a lot of hot new software, Manifest works on virtually any PC: 8088, 8086, 80286 or 80386. It's a productivity breakthrough from the memory experts at Quarterdeck.



Introducing QRAM—the Quarterdeck memory optimizer

End RAM cram in your 8088, 8086 or 80286 PC once and for all. QRAM (pronounced cram), is a package of utilities that gives you unprecedented control over memory, letting you set up your memory the way it will work best for you.

If you have EMS 4.0 or EEMS boards, QRAM can find unused addresses and 'map' memory to those addresses. Then it looks at your AUTOEXEC.BAT and CONFIG.SYS files and figures out what TSRs, network and mouse drivers and DOS resources can be loaded high and where.

And, like all Quarterdeck memory products, QRAM is compatible with the Microsoft XMS specification used by Windows 286, V. 2.x.

If your PC has 'shadow RAM,' there's even more gold in your PC. QRAM finds the unused



QRAM optimizes your memory performance by moving utilities and drivers out of the area between 0K 640K—freeing it up for your programs to use.

parts and puts them under your control.

And if you have an EGA or VGA-equipped PC and don't need graphics at the moment, QRAM will make an additional 96K 'nugget' of memory available! When you need graphics again, QRAM will switch you back to graphics mode! Think how helpful that will be for those big dBASE files.

QRAM can't work miracles, but if there's memory available anywhere, QRAM lets you use it to increase your PCs speed and performance.

QRAM is available bundled with Manifest for just a little more than Manifest alone.

Manifest and QRAM—two more examples of Quarterdeck's commitment to mining the most productivity out of the PC and software you own today.

in your PC. tools can mine it for you.

Introducing QEMM 50/60 Version 5.0

QEMM (Quarterdeck Expanded Memory Manager) 50/60 is the gold standard in memory management for the IBM PS/2™ series 50 and 60. It works with IBM's Memory Expansion Option, Expanded Memory Adapter/A and compatible memory boards.

It supports all three specifications for expanded memory: EMS 4.0, EMS 3.2 and EEMS memory so you can run all expanded memory programs.

And it also works with Microsoft's XMS specification, in case you want to use Windows.

QEMM lets you use memory locations between 640K and 1024K to run TSRs, mouse and network drivers, DOS resources and MCA adaptors. That means you can gain up to 130K of memory space below 640K for your programs.

Best of all, QEMM is designed to be easy to use—even for those new to the PC. Just install it and type 'optimize,' and it looks at your AUTOEXEC.BAT and CONFIG.SYS files and loads whatever it can in high memory. Automatically.

QEMM 50/60 is priced economically. It's the biggest boost you can give your PS/2 for the price.



QEMM and DESQview let you multitask and window with the programs you know and use today.

Introducing QEMM 386 Version 5.0

QEMM 386 can expand the memory of all 386-based computers, including PCs with 80386 upgrade boards. It makes your memory compatible with EMS 4.0, EMS 3.2 and EEMS memory without having to add special hardware. It's compatible with protected-mode programs (like 1-2-3 Release 3, IBM Interleaf and Paradox 386) using DOS extenders compatible with the Quarterdeck/Pharlap VCPi spec.

QEMM also works with Microsoft's XMS spec to extend memory for Windows users.

QEMM gives you maximum control over your memory between 640K-1024K. It can find unused memory nuggets as small as 4K and use them to free up room for programs to use.

QEMM 386 even monitors how your programs use memory while they're running. Then it shows you where there's additional memory you can use. It even measures which parts of your memory are fastest and 'decides' how to use them for better performance. In action, it's easy and fun—almost like having an *artificial intelligence* program to help tune up your PC.

All these capabilities add up to greater performance at a very low cost. And QEMM lets you go for the gold without having to become an expert on the PC memory puzzle.

Like all Quarterdeck products, it works with your current PC and favorite software.

A few words about DESQview

What's the smartest thing to do with all that additional memory? Run DESQview and multitask your favorite programs in windows. Use a mouse or keyboard and you can run graphic and text-based programs side-by-side. All without having to invest in a bigger hard disk or more memory.

From Manifest to QRAM, QEMM and DESQview, Quarterdeck helps you mine the most from the software and PC you have today.



Some of DESQview's recent awards.

System Requirements

Manifest: 8088, 8086, 80286 80386 and i486 PCs & PS/2s

QRAM: 8088, 8086, 80286 PCs. Use of high memory is only available when PC has EMS 4 or EEMS expanded memory or Chips & Technologies shadow RAM.

QEMM 50/60: 80286-based PS/2s and compatibles with IBM PS/2 80286 Memory Expansion Option, IBM PS/2 80286 Expanded Memory Adapter/A or compatible.

QEMM-386: 80386-based PCs and PS/2s and PCs with 80386 add-in boards.

Trademarks:

IBM, PS/2: IBM Corporation; PC Tools: Central Point Software; 80386, i486: Intel Corporation; Microsoft: Microsoft Corporation; 1-2-3: Lotus Corporation; Paradox: Borland; Chips and Technologies: Chips and Technologies

Quarterdeck

Quarterdeck Office Systems

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A Traveler's Tale That Bears Repeating



Six years ago, my mother was hospitalized with what proved to be a fatal illness. With a demanding job in New York, how could I manage to be at her bedside back in the midwestern city where I grew up?

Today the answer is obvious: with a laptop computer and modem. But, back in 1984, deciding to buy a Tandy Model 100 equipped with an internal modem was a novel idea. I was an oddity on planes as I tapped away at the keys during my weekly commute. At the hospital, nurses, doctors, patients, and other visitors stood in the doorway of my mother's room to watch me work. My little computer enabled me to sit at my mother's bedside, where I could write or even receive and transmit copy from or to any telephone in the world. (Actually, senior editor Nick Sullivan reminded me that at the magazine's main office four or five editors would stand around his Model 100 as copy flowed—perhaps *chugged* is a more accurate word—back and forth). That is how I spent four days of every week for a spring, a summer, and part of a fall.

In an editor's note written in my mother's room and sent to New York via her phone, I discussed the wonders of technology. When I returned to my office for my three days there, I was greeted with my copy in galley form, ready for me to proofread. Without a computer that could travel with me, I would have had to make the difficult, O'Henry-like decision between career and conscience. Fortunately, that was a choice I never had to make.

Looking at photos of Gary Smaby, this month's cover subject, working on his Model 100 at the Minneapolis-St. Paul International Airport reminded me of my situation and my Model 100. Today, even traveling with a printer, cellular phone, and fax machine, he barely gets a second glance. Taking your office on the road, for whatever reason, is now an accepted practice.

I have seen traveling offices on planes and trains, in hotels, and in cars. Our own office laptop and portable fax never miss a trade show and enable us to cover the latest industry events far earlier and with less hassle than in the past. Some of us have been able to leave for a much-needed and long-overdue vacation even in the midst of a crunch by taking our offices along.

Today, nearly all the electronic devices we use and see are brand-new. As time passes, however, we will continue to hang on to favorite old pieces of equipment and add on some new ones, customizing offices to take on the road. I can think of people who are only at ease reading in a favorite armchair or writing at a desk that has sentimental value, so why not build an office-to-go that has all the comforts and conveniences of home?

Claudia Cohl

CLAUDIA COHL
EDITOR-IN-CHIEF

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PRINTED IN THE U.S.A.

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JUST WHAT I NEEDED

I just returned from my local 24-hour convenience store with the March copy of HOME-OFFICE COMPUTING and my usual programming tools (two liters of Dr. Pepper and some munchies). I guess it's time for some kind words.

As an active computer consultant and reseller, I read a stack of computer magazines each month—*PC Week*, *PC Magazine*, *Macworld*, and others. I start to get cross-eyed after I read the third mention of some hot new machine or of how Bill Gates thinks the 80586 is *really* the microprocessor to wait for. But HOME-OFFICE COMPUTING gives me what those other magazines don't: the real world.

The tax information in Gail Rutman's piece ("Winning Tax Tips," page 45) came a little late for me this year. But I did go back over my copies to double-check that I didn't miss any of the angles mentioned.

Nick Sullivan's Workstyles piece on the new office supermarkets ("Home-Office Supermarkets," page 88) reminded me of the frenzied feeling I get whenever I go into a stationery store.

Alfred Glossbrenner has collected a lot of money from me for his many useful books. His column in the March issue ("Get Your Share of Government Contracts," page 38) will, I hope, put some money in my pocket.

And, as usual, the profiles you run each month on successful home-based business people are an inspiration.

I think the corporation should get me a subscription. Hey, is that a good write-off? Let me check in the March issue.

BOB PERRY
COMP-U-SULTANTS, INC.
Lawrence, New York

TAX FACTS

Gail Rutman owes me and thousands of other H&R Block tax preparers and checkers a big apology!

I would like the opportunity to dispel several myths about H&R Block that are perpetuated by her comparison of our company to "a fast-food restaurant" in her March 1990 article ("Finding a Good Tax Preparer," page 50).

First, H&R Block preparers routinely do more complicated returns than the piece indicated. We are also trained and updated every year to be current with the latest tax laws. Some employees of H&R Block are, in fact, enrolled agents, and as such, can go before the IRS to assist in tax inquiries. You may request a specific tax preparer if you wish; however, if you express no preference, you will be assigned to the next available preparer when you come in for your session. H&R Block preparers are professionals; we get to know our clients very well

and get a great deal of return business year after year. Further, H&R Block district offices are open year-round to provide tax advice to private citizens and to assist small businesses with 941 forms and general bookkeeping.

I wish Rutman had done a little more research before presenting what I think is a shoddy image of H&R Block tax preparers.

ROBERT H. GREY
H&R BLOCK
Reiffton, Pennsylvania

GIVE ME THAT OLD-TIME OFFICE SUPPLY

I read Nick Sullivan's March Workstyles column and found it very intriguing ("Home-Office Supermarkets," page 88).

I happen to be a sales representative for one of those so-called old-fashioned office-supply stores. I make my living solving problems for customers. If my store is out of a certain kind of fax paper when a customer needs it, I hop in my car and personally deliver a case of paper to that customer as soon as possible. I make sure my customers' refills fit their pens so they don't waste valuable time driving back and forth to the store.

In return, my customers recognize the possible added costs involved with shopping at an office-supply "supermarket": lost time spent driving to the store, added expenses from impulse buying, and added cost to cover the store's huge inventory as well as its enormous amount of floor space.

Sure, you could have Staples or The Office Depot deliver your supplies, but our local office supermarket charges \$10 or 5 percent of the order (whichever is larger) for delivery. That amounts to a 20 percent delivery charge for a \$50 package, and most of our orders are under \$50!

Sullivan states that the clerk at his "old-fashioned" office-supply store diligently thumbed through catalogs to solve his fax paper problem. Even though she came up short, at least she tried. Try to get someone to do that for you at Staples!

Perhaps if you dealt with just one of us "small-time" stores, we'd be able to keep your brand of fax paper in stock. I know if you were my customer, I'd stock it even if you were the only person in Massachusetts who used it.

ED DUPREE
Bellevue, Nebraska

CONTRACT DISAGREEMENT

I generally find your Telecomputing columnist Alfred Glossbrenner to be very helpful; however, I feel that his article on how to obtain government contracts in the March 1990 issue glossed over some of the finer points ("Get Your Share of Government Contracts," page 38).

I've been involved with government contracts and bid lists, and I know you don't get jobs from the on-line Commerce Business Daily (CBD). Yes, you can find out who might be the prime contractor for a job, or you might find out which department to call to find out who the prime contractor is (if you can get the department's phone number—some are unlisted, even on the government's central Washington, D.C., phone system). And after maybe 15 calls you'll find out that the prime contractor is, say, McDonnell Douglas and that the amount of work set aside for small businesses has already been given to, say, MicroComp, a small business that is also a subsidiary of McDonnell Douglas.

In any event, you're not likely to get the RFP (request for proposal) from the government soon enough to win the contract unless you're already on the government's bid list or on the prime contractor's list of small businesses the government is willing to deal with—or unless you can somehow subcontract on the already "won" contract.

I was able to win such a contract for computer-assisted instruction work from a prime contractor. The process took a year and followed an incredibly complex path.

PAUL T. JACKSON
TRESCOTT RESEARCH
Lapeer, Michigan

ON TARGET

HOME-OFFICE COMPUTING speaks to me! I would have been hard put to remain positive this past year and a half as a recently home-based, state-licensed collection agent if I hadn't had the opportunity to meet some of the real people in your magazine.

As I read the March issue I felt especially close to executive editor Bernadette Grey as she struggled to organize her sea of receipt-stuffed shopping bags before tax time. I identified with senior editor Nick Sullivan as he recounted his sense of wonder and checkbook abandon while shopping at his neighborhood home-office supermarket.

I'm glad to know these people; I am one of these people. And it's nice to know I'm not alone.

GRETCHEN L. PRICE
BLUE RIDGE RECORDS & DATA SYSTEMS
Lakeside, Arizona

HOME-OFFICE COMPUTING looks forward to letters from all readers. Please direct correspondence to Letters to the Editor, HOME-OFFICE COMPUTING, 730 Broadway, New York, NY 10003. Include name, address, and telephone number. Letters become the property of HOME-OFFICE COMPUTING and may be edited for length and clarity. ■

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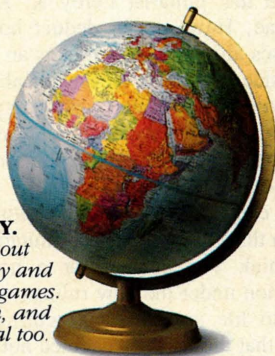
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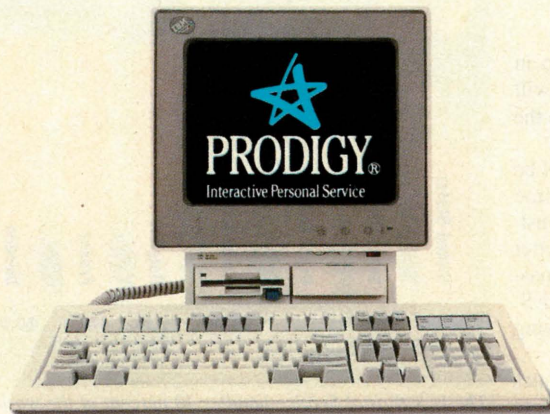
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EDITED BY KAREN KANE



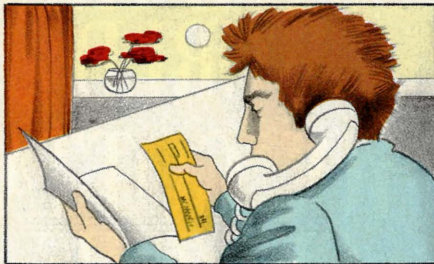
Victory for Home-Office Deduction

If you have a home office but haven't qualified for the home-office tax deduction, you may be entitled to a refund from the IRS.

In a recent United States Tax Court decision, Dr. Nader E. Soliman of McLean, Virginia, won the right to deduct home-office expenses even though his work as an anesthesiologist is conducted in hospital operating rooms. The court said that while Soliman did not offer medical services from home, he did use his home office for billing, correspondence, continuing education, and as a base to contact physicians, patients, and hospitals. In total, said the court, Soliman spent more than 30 percent of his professional time in his home office.

In deciding not to follow the focal-point test (establishing primary place of business), the tax court made four major observations:

- A taxpayer may be entitled to a home-office deduction "in cases in which the taxpayer's home office is essential to his business, he spends substantial time there, and there is no other location available to perform the office functions of the business."
- "Where a taxpayer's occupation requires essential organizational and manage-



ment activities that are distinct from those that generate income, the place where the business is managed can be the principal place of business."

- "The determination of a 'principal place of business' depends on the facts and circumstances of each case. A principal place of business is not necessarily where goods and services are transferred to clients or customers but is frequently the administrative headquarters of a business."

- Taxpayers are not necessarily required to spend most of their business time at home to obtain a home-office deduction. Soliman spent a majority of his professional time in hospitals, and in response to a proposed IRS

regulation, the tax court said, "any successful outside salesperson is not going to spend more time in his office than outside selling."

Using the Soliman opinion as a precedent, the tax court then ruled in a tax memorandum that guitarist Leroy K. Kahaku of Waianae, Hawaii, can deduct home-office expenses although he works as an entertainer outside the home. Because Kahaku has a qualifying home office, auto expenses to and from outside work sites are deductible costs rather than nondeductible commuting expenses.

Tax court decisions apply nationwide and carry a three-year statute of limitations, so if you think you qualify for a home-office deduction under the new rulings, you might want to file amended tax returns. But be aware that the IRS has decided not to follow the opinion of the tax court; and taking the home-office deduction may increase your chances of getting audited. For specific advice, be certain to consult with a knowledgeable tax attorney, CPA, or enrolled agent for the latest information relating to your individual situation. —PETER MILLER

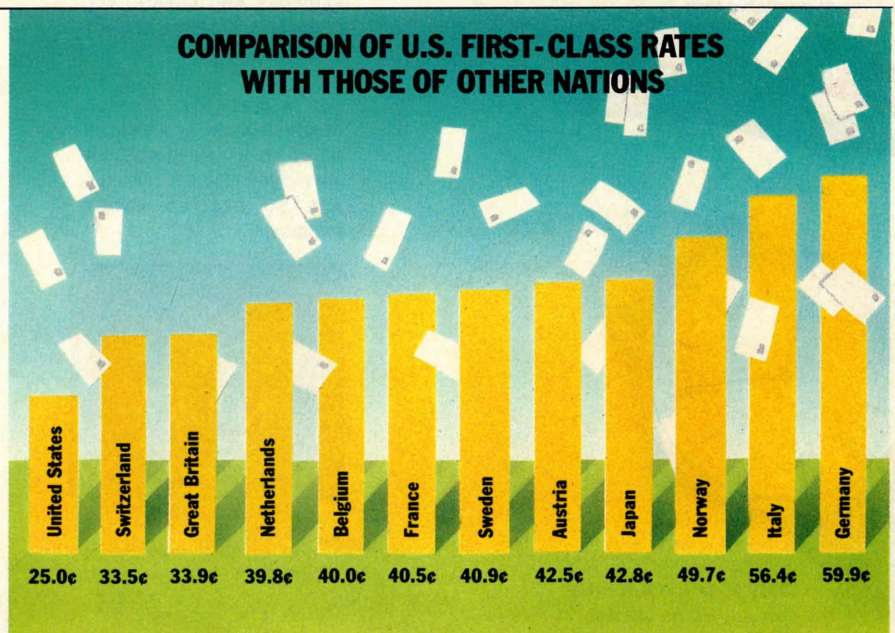
The Ups and Downs of Postal Rates

The bad news: Postal rates are going up in February 1991. The price adjustments will affect all classes of mail and will jack up the price of a first-class stamp to 30¢.

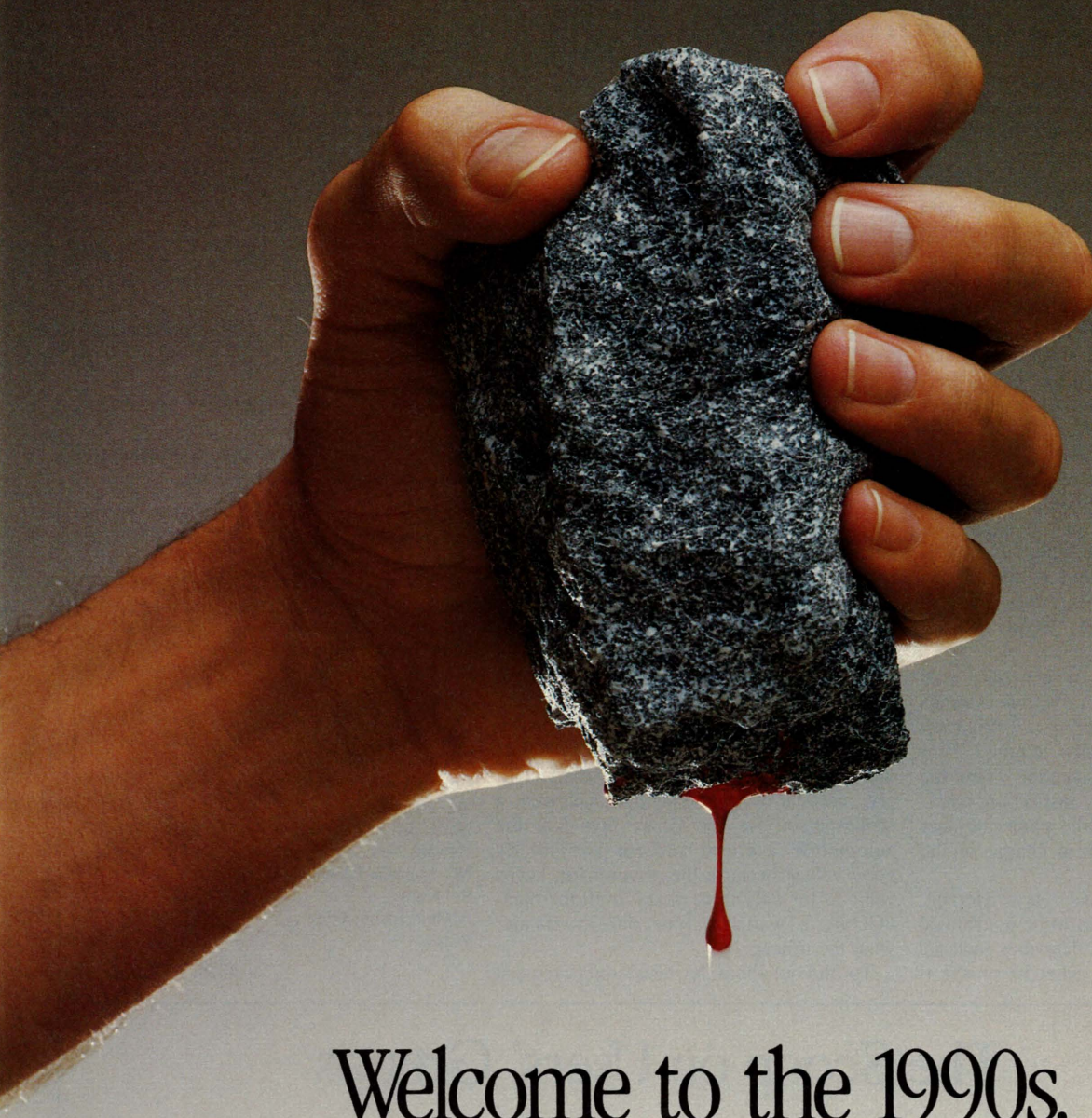
The good news: Volume discounts will be offered for Express Mail for the first time ever, lower rates may apply for some third-class bulk mailings, and we may see better service in the future. According to Postmaster General Anthony M. Frank, the U.S. Postal Service is committed to improving service and customer satisfaction.

Even with the increases, our postal rates are still a bargain when compared with those of other nations. Currently, first-class postage in Germany and Italy is more than double ours.

—PETE SILVER



The U.S. Postal Service handles 40 percent of the world's mail yet charges less for mailing a one-ounce first-class letter than most other nations. Japan, the second largest carrier of cards and letters, charges 42.8¢ to mail a letter anywhere in the country—which is smaller than New England.



Welcome to the 1990s.

It's a new decade, but you say there's no chance of squeezing a new computer out of your new budget.

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And when you buy an Intel Inboard, you also get a full five-year warranty from the company that invented the 386 microprocessor and a hotline to Intel's technical support team.

So, next time you're sitting there waiting for an application to finish, call us at (800)538-3373 and ask for the "Welcome to the 1990s" Literature Pack. Or if you prefer instant gratification, call our FaxBack line at (800)525-3019 and ask for Document #9963. Either way, we'll send you all the information you need to bring your system into the present.



intel®

Uncle Sam's Second-Hand Shop

Looking for an inexpensive way to outfit your business? Uncle Sam has a used-equipment store, selling everything from typewriter tables to 20-story buildings.

Last year, the federal government's General Services Administration (GSA) sold \$100 million worth of surplus equipment and other personal property. According to Jim Herzog, senior property marketing specialist at the GSA, the equipment can be sold for prices comparable to wholesale.

"It's difficult to predict what a particular piece of equipment will go for," says Herzog. But if you are bidding on a used desk and chair that sell for \$200 retail, you might try placing a \$25 or \$50 bid.

Herzog says that most of the computers sold by the government are old, which could make them unsuitable for business use. However, the office furniture for sale is usable. "You'll likely find typing tables, desks, credenzas, executive office chairs," he says. "There's metal, wood, plastic. You name it."

The office equipment is generally sold through sealed bids. The government sends out catalogs of property for sale, listing each item as "used," "repairs required," or "scrap or salvage." The location where the property can be viewed, inspection dates, bidding procedures, and the phone number of the government office in charge of the sale are included.

"It's an easy process," says Herzog, "and the government tries to be as detailed as possible in the way it describes material so that the buyer knows what he or she is



getting." Herzog advises potential purchasers to inspect the equipment before bidding and to check prices of similar equipment with other sources. He also suggests that potential buyers who can afford to wait make token bids on their first sales, just to keep their names on the government mailing lists. Afterward, he says, they should ask the GSA for a copy of the list of the successful bids to see what other buyers paid for the equipment.

Besides the sealed-bid sales, the government also holds auctions for larger items, including automobiles, expensive machinery, and real estate. Stephen G. Guiheen, a spokesperson for the GSA, says that the automobile auctions present particularly good values because the government keeps vehicles for only three years, until the manufacturer's warranty runs out—no matter what the mileage.

To find out about the sales, and to request

the bidder's list and catalog, contact one of the GSA regional offices below.

D.C., Va., Md.	(703) 557-7785
Conn., Maine, N.H., R.I.,	(617) 565-7322
Mass., Vt.	
N.Y., N.J., P.R., V.I.	(212) 264-2626
Del., Penn., W.V., Md., Va.	(215) 597-5671
Ala., Fla., Ga., Ky.,	(404) 331-3064
Tenn., Miss., N.C., S.C.	
Ill., Ind., Mich., Minn.,	(312) 353-6061
Ohio, Wis.	
Iowa, Kans., Mo., Nebr.	(913) 236-2500
Ark., La., N.M., Okla.,	(817) 334-2352
Tex.	
Col., Mont., Utah, N.D.,	(303) 236-7698
S.D., Wyo.	
No. Calif., Ariz., Guam,	(415) 744-5254
Hawaii, Nev.,	
No. Mariana Islands	
So. Calif.	(213) 894-5323
Alaska, Idaho, Oreg.,	(206) 931-7950
Wash.	

—JERRY CHESLOW

ILLUSTRATION BY MONA MARK

The Scoop on Users' Groups

The caller was frantic. An important word-processing file just wouldn't print. Was it a bad chip on the motherboard? Faulty software? Had an errant command disabled the printing function? As it turned out, the plug on the printer had wiggled loose from the power socket, a discovery made during a phone call to the Fog International Computer Users Group of Daly City, California.

"People get so involved in the specific details of what they're trying to do that they often overlook the obvious," says Gale Rhoades, who joined Fog after she bought her first computer in the summer of 1981.

Users' groups can assist home-office workers in many ways, from serving as knowledgeable sounding boards for in-home troubleshooting to functioning as clearing-houses of expert and unbiased counsel on hardware and software purchases. Annual

dues are usually less than \$100 and give members access to low-cost computer repair, shareware packages, informative newsletters, and immediate answers to nagging questions like how to transfer files between incompatible operating systems.

Most users' groups concentrate on a specific computer system or target a special interest, such as desktop publishing. They usually meet once a month in a public meeting place and tend to bring together people of diverse backgrounds who can help you in your business. For example, BMUG is a steady source of information for Macintosh enthusiast Kent Hockabout. As the largest independent Macintosh support group in the world, BMUG is recognized by Apple itself as a treasured resource. The group is listed in the Macintosh II manual as a source for more information. Hockabout also considers

BMUG his service center for hardware repairs. "It's the only way to protect yourself against dealers who aren't interested in after-sale support," he asserts.

Users' groups often advertise in local newspapers, on computer store bulletin boards, or in *Computer Shopper* magazine. If you can't find a group that suits you, consider starting one of your own.

What's the best reason to join a users' group? Melissa Mutkoski, owner of PC Magic of Belmont, Massachusetts, likes socializing at the Boston Computer Society meetings. She relies on meetings to provide her with the office scuttlebutt the home-based worker typically misses out on. "Everyone likes to complain about their work," she muses. "But if you have no one to gripe to, you miss something from life."

—CHRISTOPHER RAUEN

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FX-1925S 16Mhz. -386SX

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For more information on the 12Mhz 80286-based FX-1800 with built-in VGA or the 16Mhz 80386SX FX-1925S with built-in SuperVGA, call toll free: **1-800-742-8086**.

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FX-1800	1Mb	1.44Mb		VGA		
FX-1800MSYSHD	1Mb	1.44Mb	40Mb	VGA	VGA	
FX-1800CSYSHD	1Mb	1.44Mb	40Mb	VGA		VGA
FX-1925S	1Mb	1.44Mb		SVGA		
FX-1925MSYSHD	1Mb	1.44Mb	40Mb	SVGA	VGA	
FX-1925CSYSHD	1Mb	1.44Mb	40Mb	SVGA		VGA

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The Golden Floppy Awards

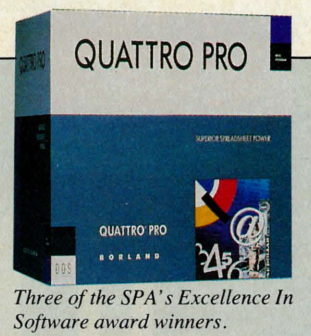
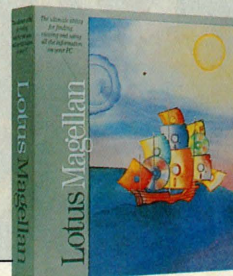
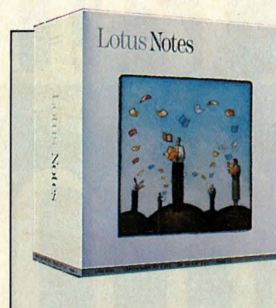
As enthusiastically as the motion picture and recording industries hand out Oscars and Grammys, the software industry presented awards for the best software of 1989. The winning programs were chosen by members of the Software Publishers Association, which is made up of more than 590 publishers in the consumer and educational software markets. Here is some of the best of the best software.

HP NewWave (Hewlett-Packard) for Best Business Application: Graphic or Display Orientation

Quattro Pro (Borland International) for Best Business Application: Numeric or Data Orientation

Quicken 3.0 (Intuit) for Best Personal Productivity/Creativity Program

Lotus Magellan (Lotus Development Corp.) for Best Utility/Communications Product



Three of the SPA's Excellence In Software award winners.

MacroMind Director (MacroMind, Inc.) for Critic's Choice Award Best Business Program

Compton's Multimedia Encyclopedia (Britannica Software, Inc.) for Best New Use of a Computer

Eye Relief Large Type Word Processor (SkiSoft Publishing Corp.) for Best Special Needs Program

Eye Relief Large Type Word Processor (SkiSoft Publishing Corp.) for Best Business Application: Word or Text Orientation

Lotus Notes (Lotus Development Corp.) for Best New Business Software Product

Other winners include *SimCity*, *The City Simulator* (Maxis), which walked away with five awards; *Where in Time Is Carmen Sandiego?* (Broderbund); *The Children's Writing and Publishing Center* (The Learning Company); *Math Shop Jr.* (Scholastic Inc.); and *Welltris* (Spectrum HoloByte).

—BERNADETTE GREY

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Clients will savor your business name and telephone number when you give them a molded chocolate business card from Choco-Logo Confectionery Design, (716) 855-

3500, of Buffalo, New York. The company also designs company logos and personalized gift baskets that will sweeten up your toughest customer.

—K.K.

Copy Error

Veteran PC users don't always speak the same language that novices do. The following story, sent to us by Kay Young of Abacus Bookkeeping and Secretarial Services in Maryland Heights, Missouri, illustrates what can happen when we forget that commonly used words don't mean the same thing to all people.

Mary had just learned how to use *Word-Perfect* on an IBM PC. She had no knowledge of DOS commands and was unfamiliar with computer terminology. She was having trouble with the program and called Tom at the toll-free technical-support number for help. After a lengthy conversation, Tom could not determine the problem, so he asked Mary to "make a copy of the disk" and send it to him to look at.

Sure enough, a few days later, Tom received the "copy" Mary had made—a photocopy of the disk!

Up Front is looking for anecdotes and humorous stories about doing business and using computers and other technology. If you recall an embarrassing situation with a client, receive a funny fax, or hear a brilliant voice-mail message, for example, tell us about it in 200 words or less. We'll pay \$25 for every submission we publish. We reserve the right to edit for style, length, and clarity. Write to Up Front Editor, HOME-OFFICE COMPUTING, 730 Broadway, New York, NY 10003.



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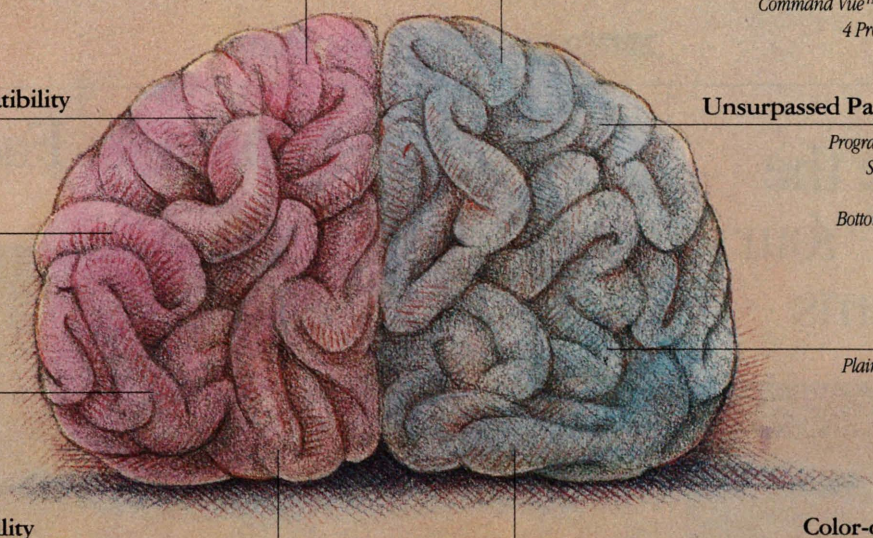
Programmable top-of-form
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Color-on-Command

User installable 7-color option



The GSX-140's Intelligence Is Only Half The Story.

Never before has a 24-wire printer offered so much intelligence. And never before has so much intelligence performed so well. Especially for a suggested retail price of under \$500.00.

The print quality rivals that of any printer in its class. While its six resident fonts give you unrivaled versatility.

When you need the work done yesterday, which is usually the case, the GSX-140's high-throughput design does the job at 192 characters per second.

Now for the smart part. The friendly Command Vue™ control panel displays plain English prompts and requires no manual to understand. Anyone with half a brain can operate it.

It puts four programmable user formats at your fingertips, as well as a Quick Menu to let you scan and access all selected functions. It even offers an on-line help system if needed.

As for paper handling, you get programmable top-of-form, versatile sheet feed and paper parking capabilities. The

convertible push-pull tractor allows you to put any kind of form into its bottom, top and rear feeds, from payroll checks to labels. Making the GSX-140 the only printer you'll ever need.

A myriad of options are available including Color-On-Command™ which you can easily install yourself for under \$60.00. You can also get a semi-automatic or automatic sheet feed option.

Finally, for peace of mind, we back the GSX-140 with a 24 month warranty.

And there you have it. Or we're convinced you soon will. For a dealer near you, just call 1-800-441-2345, ext. 34 in California, other states call 1-800-556-1234, ext. 34. Once you've seen how the GSX-140 works, you'll know why anyone offering you less just isn't using their noodle.

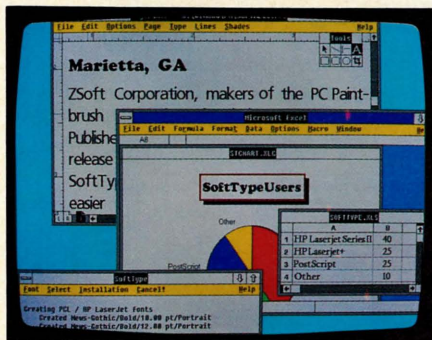


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Citizen logo are trademarks of the Citizen Watch Co. Ltd.



EDITED BY MARIE ALVICH-LOPINTO

Create the Font of Your Dreams



This Windows-based font generator works with just about any type of printer.

Anyone who wants more elegant printouts, whether they're presentations or page layouts, will appreciate *SoftType*, a new \$199 Windows-based font generator from ZSoft, the makers of *PC Paintbrush*. Working with this easy-to-use product is like having a typesetter at your command.

With 62 typefaces to choose from, you can invent your dream font. Want a 72-point Garamond italic rotated font? No problem.

One of the best things about *SoftType* is its price tag—a considerable savings over many similar products now on the market. And no matter what kind of printer you have—a PostScript-compatible, a Hewlett-Packard LaserJet, even certain dot-matrix printers—you'll be producing professional-quality output in no time.

The only drawbacks that I can see with this program are that it works only with Windows-based software and it doesn't come with its own version of Windows (v2.1 or higher). —BRIANNA POLITZER

About Product Previews: In this monthly department, you'll read about the latest hardware and software for the home office. While not complete reviews, mentions in Product Previews are based solely on editors' evaluations rather than manufacturers' press releases. Many of the products that appear here will be fully reviewed in future issues.

Plain-Paper Fax Facts

Fact: The flimsy thermal paper used in today's fax machines fades and discolors over time.

Fact: The best way to save documents printed on thermal paper is to photocopy them onto plain or bond paper.

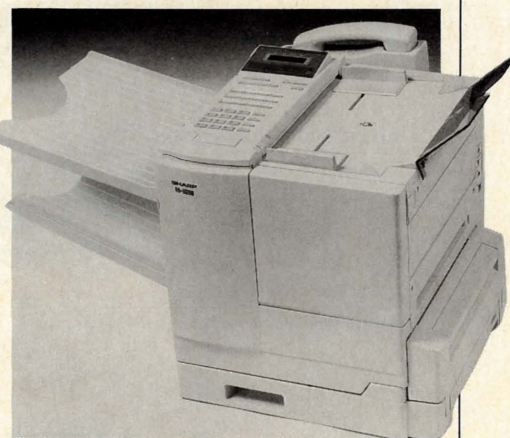
Fact: The demand for plain-paper fax machines is greater than it's ever been.

Fact: Almost all plain-paper fax machines available today cost more than \$5,000.

Now Sharp Electronics adds a new fax fact: Its new plain-paper fax—the FO-5200—costs less than \$4,000.

Although it's still costly, the high-end FO-5200 is chock-full of features. You can scan documents into the unit's 256K of memory and then send them after hours (with delayed transmission) or automatically to 32 remote locations (with broadcasting). The memory also enables the unit to receive and store documents after it has run out of paper.

I'm interested in the FO-5200's security feature. There are 10 mailboxes available (in memory) so senders can forward confidential documents directly to a specific person. Documents can be printed and erased from a mailbox only with an authorized password.



Sharp's feature-packed fax machine, the FO-5200, prints on plain paper.

Other features include a 64-number memory (32 fax, 32 voice), autoretrial, automatic cover-sheet generation, and a large 250-sheet letter-size cassette tray (you'll pay extra for a legal-size tray).

Look for a full review of this feature-packed plain-paper fax machine in an upcoming issue. —M.A.L.

More Than a Mouse

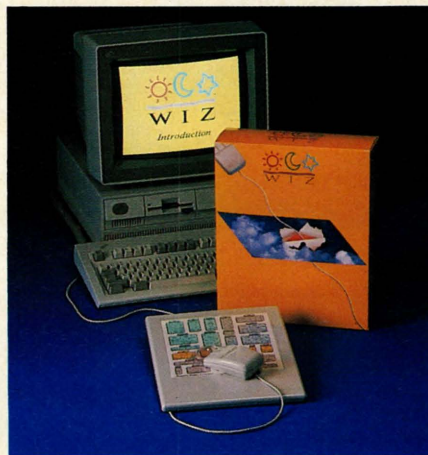
What do you get when you cross a mouse and a graphics tablet? (No, this is not a bad joke.) You get the *Wiz*, an unusual melding of input devices that combines the ease of use of a mouse with the power of an intelligent

graphics pad (sometimes called a digitizer).

Designed for both IBM and Macintosh users, the *Wiz* employs a mouse and various templates that are placed over the graphics pad, simplifying the creation of drawings, presentations, CAD, and other graphics that require precision. Cross hairs (two lines whose intersection marks the active cursor position) sit at the front of the mouse, giving you greater accuracy and precision when drawing or tracing.

DOS 2.1 and Windows templates are included with the *Wiz*, and more than 35 other popular software templates (*WordPerfect* and *PageMaker*, to name two) are available for \$49 each. All the required cables and software to run the *Wiz* are included.

The *Wiz* eliminates pull-down menus and simplifies procedures requiring multiple keystrokes. But many experienced mouse users already accustomed to these menus may resent having to make adjustments to gain functionality and flexibility; it takes time and patience. —CONAL LI LARKIN



Wiz eliminates tedious pull-down menus.

Italian masters have always believed that only with a reverence for detail can there be perfection.

The Stradivarius Violin

Since the 17th century the world has marveled at the sound of the violins by Antonio Stradivari. By experimenting with the details of the instruments' proportions, wood, and even the varnish, he created what is the standard of perfection.

Europe's PC leader introduces the PCS 286 to America. Performance. Price. And all the details.

When it comes to personal computers, what is perfection?

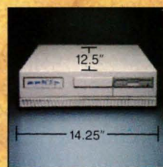
As one of the world's largest makers of personal computers, Olivetti knows perfection requires great attention to detail. That's why if you work at home, have a small business, or purchase computers for a

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Answers to Readers' Questions

BY STEVEN C. M. CHEN

FAX BOARDS vs. FAX MACHINES

Q. I own two IBM PC XT's that I use only for word processing. I'd like to add a fax board. What are my choices? Also, when will plain-paper fax machine prices drop to the \$1,000 range?

PAUL NEAL COOLEY
Missoula, Montana

A: We are some time away from \$1,000 plain-paper fax machines. Prices are coming down, but not as dramatically as those of thermal-paper fax machines. Most plain-paper models cost around \$5,000 (Canon's FAX-L770 and Ricoh's FAX1010L, for example), but Sharp recently introduced the FO-5200 plain-paper fax, which will cost about \$3,995 (see *Product Previews for more information*). This should start a wave of lower-priced models.

You should be aware of the advantages and disadvantages of fax boards. Fax boards are great if all the documents you want to fax are on disk or if you have access to a scanner. You never have to fuss with cover sheets or hard copy when sending, but you do have to leave your computer on all the time to receive faxes. You can print incoming documents on plain paper or use them directly in your word-processing applications.

The software that comes with fax boards is memory resident and is activated by incoming fax calls. Your computer may be too slow to handle the incoming fax in the background while executing other computing tasks. Also be aware that fax software requires about 100K of RAM.

Most fax boards come with clear installation instructions and easy-to-use software. The Hayes JT Fax 9600B (\$695) and the Intel Inter Connection CoProcessor (\$995) both received four-star reviews in our May 1989 issue.

ADD POSTSCRIPT CAPABILITY TO YOUR PRINTER

Q. I own a Hewlett-Packard LaserJet IID laser printer and would like to make it PostScript compatible. What are my options?

WILLIAM A. ANDERSON
Houston, Texas

A: PostScript printers are the number one choice for professional desktop publishing,

but they are expensive. To add PostScript capability to your HP LaserJet IID printer, there are three options: software, ROM cartridges, or PostScript emulation boards. Cost and speed set them apart.

Memory-resident software can intercept PostScript codes from your application and convert them into a language your printer understands. I'm aware of four packages: *GoScript Plus* 3.0 from LaserGo (\$149-\$395), *UltraScript PC Plus* from QMS (\$295-\$445), *Freedom of Press* from Custom Applications (\$495), and *PreScript* from Pan Overseas Computer (\$195-\$395). Both *GoScript* and *Freedom of Press* will work with a basic PC. *UltraScript* and *PreScript* require at least a 286-based computer.

Performance depends largely on the speed of your computer, but get ready for a 75 percent print-speed reduction. An eight-page-per-minute printer can turn into a two-page-per-minute printer. Also be prepared to give up 3MB or more of disk space and 1MB to 2MB (or more) of extended or expanded memory.

PostScript ROM cartridges, which plug into the printer's font-cartridge slot, translate incoming PostScript codes for your HP LaserJet IIP. ROM cartridges, such as Pacific Data Product's *PacificPage* (\$495) and HP's *PostScript Cartridge* (\$495), are about twice as fast as PostScript emulation software. Printer memory requirements average 2MB to 4MB.

PostScript emulation boards are expensive, but they are the fastest approach. A PostScript board requires a spare 16-bit slot in a 286-based (or higher) computer and comes with a video board for your HP laser printer. Since they cost \$1,000 to \$2,000, you might be better off buying a new printer. Hewlett-Packard's newest laser printer, the HP LaserJet III (see *review in this issue*), offers scalable-font capabilities similar to those of a PostScript printer. And the street price should be as low as \$1,500.

What's the best solution? You should let your budget and speed requirements be the deciding factors.

BREAKING THE PC'S 640K BARRIER: IS IT POSSIBLE?

Q. I have a 640K Tandy 1000 TX and am running out of memory—especially when I have a memory-resident or terminate-and-stay-resident (TSR) program installed. I have to remove TSR programs in order for some

applications to work properly. I've heard that software can relieve my RAM cram. Any good recommendations?

L. DAVID MORRIS
Milan, Tennessee

A: The personal computer's 640K memory barrier still applies to DOS and most software, but memory-management utilities like Qualitas's *Move'Em* (\$89), Quarterdeck's *QRAM* (\$80), and Above Software's *above Disc* v3.1 (\$119) can help you get around this barrier, provided you have expanded memory installed in your computer.

With these utilities, memory-resident programs, such as Borland's *SideKick*; screen savers, such as Revolution Software's *VGA Dimmer*; device drivers, such as mice and CD-ROM drivers; print spoolers; and system-performance enhancers, such as MultiSoft's *Power Pak*, can be moved to an area—known as high DOS memory—above the first 640K of RAM. This leaves more room (anywhere from 88K to 200K) for your DOS applications.

MANUFACTURERS

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Canon (516) 488-6700
Custom Application (508) 667-8585
Hayes (404) 441-1617
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Qualitas (301) 907-6700
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Ricoh (201) 882-2258
Sharp (201) 529-8200

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If you need computer advice or are having system problems that need diagnosis, our technical staff will try to help you out—and we'll pay you \$25 if we publish your letter in *Clinic*. Although we cannot answer each letter individually, this column will deal with frequently asked questions and common problems. We reserve the right to edit letters for clarity and length. Please include your name, address, and phone number with all correspondence. Send your letters to *Clinic*, HOME-OFFICE COMPUTING, 730 Broadway, New York, NY 10003. ■

STEVEN C. M. CHEN is managing technical editor at HOME-OFFICE COMPUTING.

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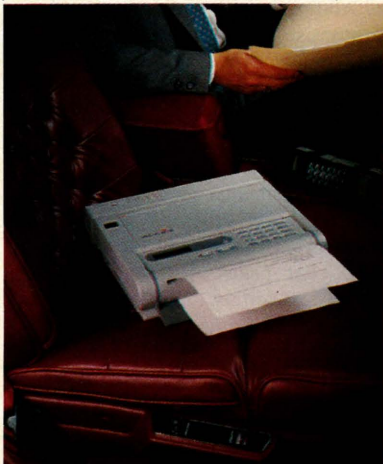
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CIRCLE READER SERVICE 60

Details Can Make or Break Your Printed Pieces: Part 2

BY STEVE MORGENSTERN



I know of only one advantage that manual methods for creating camera-ready mechanicals have over using desktop-publishing (DTP) software. The traditional approach

makes you stop and think.

Do you want to put six different blocks of text in boxes on the page? The person who has to create each of those boxes by hand might have a very different answer than the computer user. How about putting vertical lines between columns of text? For many people using DTP software, that's as simple as making a single menu choice—but does that make it a good idea?

Last month I addressed details that contribute to professional-looking pages: large initial capital letters and the proper kerning and tracking of text. This month I'll look at a few more of the graphic and typographic effects that DTP page-layout programs put at the fingertips of even fumble-fingers like myself. The *hows* of accomplishing these effects can be found in your software manual; I'll concentrate on the *whens*. When is choosing a border from a pull-down menu a good design decision? And when isn't it?

By the end of this column, I'll get to a fairly flashy technique—wrapping text around irregularly shaped graphics—but I'll start with something basic. Because sometimes, the shortest distance between a confused layout and a well-composed page is a straight line.

LINE UP YOUR PAGES

Lines used as graphic elements in a layout are usually referred to as rules. Their thickness is measured in points, the same units used to measure type height. A 2-point rule is a fairly thick line; a very thin line, usually called a hairline, is a 1/4-point rule.

If you print drafts on a laser printer and output the final page layouts on professional typesetting equipment, watch out for hairline rules. The typesetter can print much finer lines than your laser printer. That means that the hairline rule you print at 300 dots per inch will look much thicker than the one you get back from the typesetter. Ask to see a sample before you pay to set

your entire job, and adjust the point size of your lines if necessary.

Making text easier to read. Why use thin vertical rules between columns? One answer is purely practical: You can position columns of type closer together if you run a thin vertical rule between them, thus fitting more material on a page. In its main news section, for example, the *New York Times* runs six columns across with just over half a pica between columns. That's very tight—if there were no hairline rules between columns, your eye would jump right across that thin intercolumn spacing, and the newspaper would be virtually unreadable. In the Sunday business section, on the other hand,

rule in several places helps tie the whole page together. Ruled editorial pages are also distinguished clearly from any ad pages surrounding them.

In my own projects, I am a big fan of setting type ragged right instead of justifying it. My reasons are partly aesthetic—a ragged-right setting adds white space and a varied visual texture to a layout. Expediency plays a big part in my decision, too. Ragged-right text is faster and easier to set attractively, since you don't have to deal with lots of hyphens and variable word spacing to force lines to hit flush on both sides.

Sometimes, though, a ragged-right setting needs organizational help, since text blocks

SOCIAL SECURITY ADMINISTRATION Application for a Social Security Card

Inside is the form you need to apply for a Social Security card. You can also use this form to replace a lost card or to change your name on your card. This service is free. But before you go on to the form, please read through the rest of this page. We want to cover some facts you should know before you apply.

IF YOU HAVE NEVER HAD A SOCIAL SECURITY NUMBER



If you were born in the U.S. and have never had a Social Security number, you must complete this form and show us documents that show your age, citizenship, and who you are. Usually, all we need from you are:

- Your birth certificate; AND
- Some form of identity, such as a driver's license, school record, or medical record. See page 2 for more examples.

Although we prefer to see your birth certificate, we will also accept a religious or hospital record of your birth made before you were 5 years old. **We must see original documents or certified copies. Photocopies are not acceptable.** You may apply at any age, but if you are 18 or older when you apply for your first Social Security card, you must apply in person. Please see the special requirements on page 4 if you were born in a foreign country, if you are not a U.S. citizen or if you need a card for a child.

IF YOU NEED TO REPLACE YOUR CARD

To replace your card, all we usually need is one type of identification and this completed form. See page 2 for examples of the kinds of documents you will need. If you were born outside the United States, you must also show proof of U.S. citizenship or lawful alien status. Examples of the documents you will need are on page 4. **Remember, we must see original documents or certified copies.**

IF YOU NEED TO

If you already have a Social Security number, but need to change your name

Horizontal rules of different widths separate this page vertically, but tie the two columns together horizontally. This design strategy works well for brochures, listings, and other materials where the reader will pick and choose.

the *Times* fits all the news that's fit to print into a five-column grid with more space between columns, so the intercolumn rules are eliminated.

Even when you allow a more generous space between columns, you may like the way a hairline column rule organizes the page for your readers. *Newsweek*, for instance, runs intercolumn hairlines even with a full pica between columns, and the result is an easy flow of your eye through the text. Illustrations frequently break up the ruling lines, keeping them from becoming oppressively consistent. And short rules, the same weight as the intercolumn rule, are used to separate captions from body text and to separate subheads from major headings and body text. Using a consistently weighted

with varying line lengths often seem to float in space. Adding hairline column rules lets me compromise, imposing organization without slowing down the typesetting operation.

Making coherent pages. Horizontal rules can both separate individual sections of your text and help hold your design together with repeated visual elements.

For example, you generally want to be visually consistent in defining the tops and bottoms of your pages. With a novel or other straight-text setting that's not very difficult—just use the same number of lines per page. But what if your text breaks up logically into separate sections of different lengths? Suppose you were creating a company phone directory with a page or two per

Jumpstart your newsletters.

Inside...

* The 1954 Roadster: last of the lipstick-red lust machines.

* Hood Ornaments: worth more without the car?

* Classic car models: scandal at New Bedford Mint.

Classic Cars

THE SPRING ISSUE * VOLUME I * NUMBER II

Found: Henry Benzini's Personal Porsche!

The rarest car and one of the most mysterious men in the world are both in the news again -- more than thirty years after both had disappeared.

It could have been a scene right out of a mystery movie: a deserted barn, at the east fringe of a large country farm in the northeastern-most corner of rural Italy. Abandoned, neglected for years, with no indication that this ramshackle hut could contain anything more than dust, dried out hay, a few rodents and a spattering of petrified cow

chips. Or a '57 Porsche Speedster. And yet, incredible as it may seem, there -- smack on the property of one Flavio Saggitori -- there it was, as plain as day, one of only three experimental models ever built of the car that Augustus Porsche called his personal favorite.

Car Number One, of course, belonged to Porsche himself. Number Two, a gift by Porsche to a boyhood friend from Munich, Heinrich Mueller.

And Number Three? To the everlasting dismay of the master himself, Speedster Number Three was stolen during the infamous Tetrazini Auto Show Scandal of 1957. While it never surfaced again the buyer was always believed to be the reclusive Henry Benzini, who is said to have purchased it with the fortune he amassed over the years in trading foreign hubcaps of vintage automobiles. He was last seen in

(See PORSCHE, Page 2)



Events Calendar

2/12: Oshkosh Motor Show '90. Wauwatuck High School football field.

3/9: Sportscar Day. Music by Mothers of Speed.

3/11: Swap Meet. Mixer and Social.

How designers of the '40s saw the '90s.

We all have visions of what our cars might look like twenty, thirty, or even a hundred years from now: sleek, swept-winged aerial vehicles swooping and gliding over the towering metropolises of the future.

But what about the car designers of a half-century ago? What did they see? In their visions, did they imagine the slick technological marvels we ride in today? The reality of their

(See DESIGN, Page 3)

In Our Next Issue...

Classic Car Etiquette: Rules of the Road



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letter. Or a product catalog with photos and descriptions of varying sizes and lengths on each page. You could use bold running headers and footers to hold the tops and bottoms, but you can also use horizontal rules to establish your territory while allowing a varied layout from page to page. Often the two strategies are used together by creating headers and footers that include horizontal rules.

Horizontal rules also work well if your text breaks into many separate subsections. I recently picked up the government form to apply for a Social Security number for my daughter (see figure). The instructions are neatly broken up into 11 bite-size sections. Each person dealing with these instructions will need to refer to only a few of these items. For example, there's a paragraph headed "If You Have Never Had a Social Security Number," another "If You Need to Replace Your Card," and still another "If You Need to Change Your Name On Your Card." The designer came up with an elegant solution. The 8½-inch width is divided into a narrow (12-pica) left column for subheads and a wider (30-pica) column for explanatory text. The horizontal rule between sections incorporates two widths: thicker above the narrow column, then thinner across to the right margin.

The result may not win any design awards, but it's a good, functional layout—

clear and unimposing. The rules both separate the page vertically and tie the two columns together horizontally. A similar strategy works well for product brochures, seminar listings, and other material where the reader will pick and choose items of interest. I have also seen thin horizontal rules used very effectively to separate the sections of a résumé.

Some additional uses of horizontal rules are

- As a headline treatment. For example, the different departments within a publication might be consistently set with rules above and below for easy identification.

- To highlight a pull quote. A pull quote is a short, intriguing excerpt from the main text, set large in a separate block as a sort of reader's appetizer. Pull quotes are sometimes boxed, but they often look better with ruling lines top and bottom to distinguish them from the surrounding text without imprisoning them completely.

Making elements work together. Boxing a block of text gives it a separate identity. This works well when you're creating a sidebar: copy that relates to the main story but is not essential reading. Typical sidebars are glossaries, additional information about a specific point in the main text, or a listing of technical specifications.

Since the boxed text is a separate element, you will probably want to include a

heading or subheading to define its purpose.

Illustrations can also benefit from boxing. If the graphic already has well-defined corners, such as a photograph, then adding a box may be overkill. Sometimes the shape of the graphic leaves it floating in a sea of white space, though (maps are a typical example). By enclosing the graphic in a ruled box, you get a neater page and you can also neatly enclose legends and captions.

FLASHY EFFECTS

When you played with blocks as a kid, you probably didn't just stack same-size rectangles on top of one another. Instead, you played around with different shapes and sizes, trying for interesting patterns while maintaining balance. Designing pages is basically a two-dimensional version of the same game. And wrapping text around graphics lets you experiment with lots of new shapes.

You can wrap text around rectangular graphics or be adventurous and make lines of text break around the edges of an irregularly shaped graphic. In either case, be sure to maintain a consistent gap between text and graphics throughout your project.

The pitfall in wrapping text around graphics is sacrificing legibility. That's why I generally avoid breaking the right edge of a text column—that's the consistent anchor as my reader scans the page. An irregular left side is less of a reading problem, as long as I maintain a reasonable number of words on each line. If the text lines become very short, I'm demanding too much jumping around for the privilege of reading my deathless prose. I'm also asking for typesetting problems of excessive spacing and hyphenation, particularly in justified settings.

KEEP THINGS SIMPLE

The most common complaint about desktop-published documents is their busyness. The ease of creating graphic devices using DTP software often leads to the child-in-the-candy-factory effect: too much of a good thing. Adding boxes and borders and eating up white space with text wraps can darken your pages, making them dense and uninviting. And asking readers to focus on competing graphic highlights on a page is worse than simply having them read straight text.

Fortunately, DTP software lets you experiment endlessly. Don't take that long, but take the extra couple of minutes to add a few graphic flourishes to your page and to examine the printed proof with a critical eye. Even if the result doesn't quite work for your current project, you may be able to use the same device at a later date.

But proceed with a sense of restraint. When it comes to adding graphic elements to your page layouts, you literally have to know when to draw the line. ■

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There's Hope for Organizing the Ins and Outs of Your Life

BY STEPHEN MILLER

IBM's *Current*: The Perfect Information Manager?

Most people deal with informational chaos daily. Too much information flows randomly, almost illogically, in and out of our offices.

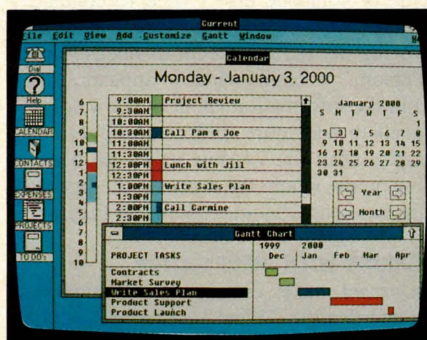
Look at my life: I normally work on several magazine articles at once. The articles are in various stages of completion—from initial queries to editors, through research and interviews, to organizing notes, drafts, submissions, and rewrites. Each stage requires information from other people, which typically comes back to me on *their* schedule, not mine. At the same time, wearing my second hat, I consult clients on computing. This job, too, consists of stages—securing clients, assessing their needs, installing hardware and software, training, and troubleshooting—and, again, I have to work on their schedule, not mine. Add to the mix my volunteer work for a couple of professional organizations, as well as my day-to-day living, and I deal with informational chaos.

IMPOSING ORDER ON CHAOS

Over the years, I jury-rigged a system of several software packages, trying to bring order to my data madness. I used one program to quickly find basic information about all of my contacts (phone number, address, company, their job, and so on) and to make brief notes about our conversations. With another program, I set up a traditional database to mirror much of the information from the contact software so I could transfer it without retyping. For instance, I often send form letters, and the database lets me export information to the word processor that's compatible with its mail-merge function.

But my system was a compromise, which means I gave up certain things—notably the ability to operate in the same random fashion as the information flow. The ordered structure of most software puts it at odds

with randomness: A word processor lets me enter information willy-nilly, but it's difficult to retrieve a specific scrap. A database helps me find information quickly, but I



Current's appointment book looks like a standard calendar.

Current

RATING: ★ ★ ★ ★

AT A GLANCE: Information manager that brings order to work's random details. Needs a lot of hardware, but worth upgrade. **DOCUMENTATION:** Very good, but fat tutorial could intimidate, making program seem more complicated than it really is.

ERROR HANDLING: Very good, but error messages refer only to a number listed in manual, which tells you how to correct problem. That information should be online, like help file and tutorial.

EASE OF USE: Excellent. Mouse, pull-down menus, intelligently designed screens make managing information more efficient.

SUPPORT: Excellent. Helpful and responsive. When you register, publisher sends *Current* database of toll-free phone numbers for major hotels, car-rental agencies, and airlines.

VERSION REVIEWED: 1.0

PRICE: \$395

SYSTEM REQUIREMENTS: 640K IBM PC AT, PS/2 (80286 or greater microprocessor); hard-disk drive; EGA, VGA; DOS 3.3 or higher; 5.25- or 3.5-inch

PUBLISHER: IBM Desktop Software, 472 Wheelers Farms Rd., Milford, CT 06460; (203) 783-7300

must enter it in a highly organized way. That's why I've searched for a program that lets me type in information as it comes to me and then call it up in a vastly more coherent and orderly manner.

Because my situation is not unique, a variegated class of software has been created called the personal information manager (PIM; see "Software That Suits Your Style," a feature on PIMs, in the February 1990 issue). I've reviewed PIMs for several years, even before the label existed, and found most of them wanting, at least for my work style. I had nearly given up hope of finding my ideal PIM when I discovered *Current*. Although not perfect, it'll do until the real thing comes along. Because *Current*, from IBM's new Desktop Software division, does so much, it's hard to describe the program's usefulness and features in a few pithy phrases.

MAKING THE CONNECTIONS FOR YOU

Like most PIMs, *Current* is at heart a predesigned relational database. Every piece of information I deal with has numerous interconnections. For example, a phone number is related to a person, and that person is related to a task I must complete. That task is part of a project I'm working on, and that project is helped along by a product from the company that employs the person whose phone number I started with. *Current* is built around the concept of connections—I can get any specific information by just knowing one piece of it.

For example, I display a list of names and come across the name Jill Nelson. I don't remember who Jill Nelson is, so I simply click on her name to open a window that gives me more information about her—address, phone number, and so forth. It turns out that she's a reporter for the *Washington Post*. Also on the screen is a line for the category "Working on Project," and beside it is the entry "Computer Funnies." I click on that entry and open another window that informs me that Nelson wrote a funny piece in the *Post* about how computers have replaced cars as the male-macho symbol. There is a diamond icon next to the project category and a shaded portion that tells me there are more entries. By clicking on the

STEPHEN MILLER is a Brooklyn-based writer and computer consultant.

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SATISFACTION GUARANTEED

diamond, various titles are revealed. One reads, "The Dark Side." Clicking on this brings up the name of a psychologist I interviewed about the negative effects of certain computer-related activities.

That reminds me: I need to talk to him about another article. I click on his name and his information is displayed. Along the side of the *Current* screen are icons. One is a picture of a telephone. I click on the phone, and (because I have a modem) *Current* dials his office. When we connect, I press the space bar and a window pops up for notes about our conversation. *Current* also automatically reads the computer's clock/calendar and times the call. While we're talking, the psychologist gives me the name of someone else I need to contact. I click on the Add menu item, and a window showing my list of categories opens. I pick "Person," a blank window appears, and I fill in the information about the new source. I need to add more information later, so I simply move the window aside, go back to the window where the notes on the psychologist are, and continue adding to them.

WORKING WITH INFORMATION

Current makes entering information simple and flexible. When I add a new person, the window that opens lists all the typical items, like name and address, and several entries are titles such as "Employed by Company." When I click on that entry, for instance, a window comes up listing all the companies in the "Company" category. If the company is listed already, I just click on the Assign and Save buttons, and the company—and all other information about it—is automatically connected to that person. If the company is new, I click on the Add button for a window, where I fill in information. If I don't have all the information I need, I enter it later.

What I really like about using *Current* is that I can stop whatever I'm doing and work on something else without losing my original place. If I'm typing in information and get a phone call, I can open another window, make notes, assign the call to a particular person with a couple of mouse clicks, finish the call, and save the information. Then I can go right back to where I left off.

I could go on forever—that's just the tip of *Current*. One of its most powerful features, View, lets me approach information in a variety of ways. I can view everything in my database or just information that fits certain criteria. *Current* calls this approach filtering. For example, I can see only the people who work for client X. I could further filter that view by finding only the people who work for client X and also use *Current*. I can even filter only the client X *Current* people I've talked to since two weeks ago, for instance.

Current's calendar lets me keep track of meetings, phone calls, conferences, and other events. Each appointment is shown in a graphic that looks like a standard daily calendar. It tells me if I have a conflict but will let me enter the appointment anyway. When I create a project—writing a software review, for example—*Current* automatically builds a Gantt chart that tracks the progress of the project. I can assign other people to each project—the editor, say, and my contact at the software company—and track their progress, too. I've created form letters within *Current* and sent mass mailings based on names filtered in a view. Most of these functions come ready, right out of the box, but *Current* can be easily customized to your specific needs without doing much more than clicking on buttons and filling in your particular requirements.

BUYER, BE AWARE

While *Current* is certainly a praiseworthy product, there are several significant barriers that may cause some of you to forgo it. First of all, it runs under Microsoft *Windows*, the multitasking, mouse-controlled, pull-down menu environment. While *Current* comes with a run-time version of *Windows* that gives you most of its capabilities, *Current* works better with a full version. The complete *Windows* package includes several programs that are a convenience.

Windows also demands a lot of memory and a powerful CPU to work effectively. That means you need at least a speedy 286. A 386SX is better, and a 386DX is best. *Windows/286* will run with 512K of memory, and *Current* needs 640K. The two work well enough, but as you open more windows, your system starts to slow down. *Windows/386* needs 2MB of memory just to load. I don't think you should try to run *Windows/386* and *Current* with less than 4MB. While prices have come down on 386-based computers, these machines still cost more than AT clones.

Even though I have had access to powerful, state-of-the-art computers, I didn't really feel the need for one. Most of the applications I use can work effectively, albeit slowly, on the older machines. I've also been antimouse. As a fast touch-typist, I always resented taking my hands off the keyboard to move the mouse.

Well, *Current* totally changed my mind.

I believe that this is the first product since Lotus 1-2-3 that will cause people to bite the bullet and get a more powerful computer. It is so good that you'll do what's necessary to get it to work properly. Two days after I loaded *Current*, I went out and bought a mouse. The following day, I got *Windows/386*. The only thing holding up my ordering a 386 is the check from a client that hasn't arrived as I write this. ■

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SYSTEM REQUIREMENTS: PC—IBM PC, XT, PS/2, or compatible, 384K RAM, DOS 2.1 or higher, hard disk. Macintosh—System Tools 6.0.2. Supports MultiFinder. Operates on a Mac Plus or higher with 1 Mbyte. Hard disk is recommended.

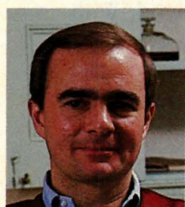
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Point-and-Click Software Makes CompuServe Easier to Use

BY ALFRED GLOSSBRENNER



With more than 550,000 subscribers, CompuServe is one of the largest electronic information services in the world (though it's dwarfed by Minitel, which reaches 4 million Europeans). But

CompuServe has determined it will have to make the system easier to use to significantly expand the number of subscribers. It has watched Prodigy gain 350,000 members in its first year because of lower on-line costs and a graphical interface. CompuServe's answer is the *CompuServe Information Manager* (CIM)—software you use in lieu of communications software when accessing CompuServe.

Through the clever use of pull-down menus, dialog boxes, menu bars, and all the other Macintosh- and Windows-like elements (save icons) we have become familiar with in recent years, *CIM* makes CompuServe much easier to visualize and use. You move the highlight bar to the general heading on the menu bar atop the screen and pull down the menu; then move the highlight bar down the menu, and hit Enter or click the mouse to activate the command.

In short, *CIM* is designed to shield users from CompuServe's demanding, uninformative Enter Choice! prompt, which requires users to learn commands to navigate around the system. *CIM*, which costs \$24.95, is available now in MS-DOS format, with a Macintosh version on the way.

If someone had never used a modem before, would *CIM* make signing onto and

using CIS easier? Yes, it would. But you must still set your communications parameters (COM1 or COM2, baud rate, data bits, parity, and so on).

Want to visit your favorite forum? Just hit Enter or click the mouse and the program



**Just click the mouse and
the software will log you
on and whisk you to your
favorite place.**

will automatically dial through the modem, log you onto CompuServe, and whisk you there. The Favorite Places menu is preset with IBM-related sections, but you can customize the choices to reflect your tastes.

Eliminating the need for users to visualize where they are, what other "rooms" are available, and how to get there is the main strength of *CIM*.

GETTING STARTED

I had a few problems with the current

version (1.0). Put another way, it's a good thing I have two computers. The machine I call Dum (short for Tweedledum) has a mouse, so naturally I installed *CIM* there first. The installation was straightforward, and in a few moments I was ready to click on Mail to tell *CIM* to sign on and fetch the latest electronic missives.

A box appeared on-screen telling me that my modem was being initialized. A minute passed and nothing happened. I checked the hardware connections. Still nothing. Finally I had to reboot (*CIM* locked up the keyboard). I loaded *ProComm* and dialed out. Obviously the hardware was fine. I loaded *CIM* again without the mouse. Same story.

I hate to call customer service because I know I'll get put on hold. But I decided to bite the bullet. If there is a customer-service number inside the *CIM* manual, I have yet to find it. By chance, I looked at the back flap and there was the phone number I needed. I dialed once. Busy. I redialed. Busy again.

Finally, because I've had experience testing hardware and software and because there was nothing left to do, I installed *CIM* on Tweedledee, my other AT-clone computer. Same Hayes-compatible modem, same phone line, same *CIM* configuration file. And it worked. The only difference between Dum and Dee is that their motherboards are made by two different companies in Taiwan. I cannot imagine why that would make a difference, particularly since all of my other communications software works perfectly on both systems.

To its credit, CompuServe maintains a special support forum on the system (GO CIMSUP), so I decided to see if others had had similar problems. There were quite a few messages from people with the identical complaint, each of them patiently answered by CompuServe's support staff. I tried the suggested fixes, but the program still wouldn't work on Dum.

ALFRED GLOSSBRENNER is the author of the Master Guide to CompuServe, Master Guide to FREE Software for IBMs and Compatible Computers, and The Complete Handbook of Personal Computer Communications. He can be reached on CompuServe (ID: 70065,745) or MCI Mail (ID: AGLOSSBRENNER).

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When you join CompuServe, your computer becomes a communications link between you and more than 500,000 CompuServe members. That's more than a half million different jobs, skills, experiences, interests, senses of humor, hobbies, and interesting peccadillos.

The possibilities are endless. Because CompuServe's communications services

include everything from special interest forums to electronic mail and fax services. They let you ask questions (our forums, for instance, can sometimes solve hardware and software problems faster than the manufacturers can), give answers, and make just about any kind of contact you want. (It's true. We've already had several online marriages.)

So become a member of CompuServe. Because let's face it, 500,000 heads are better than one. Any questions?

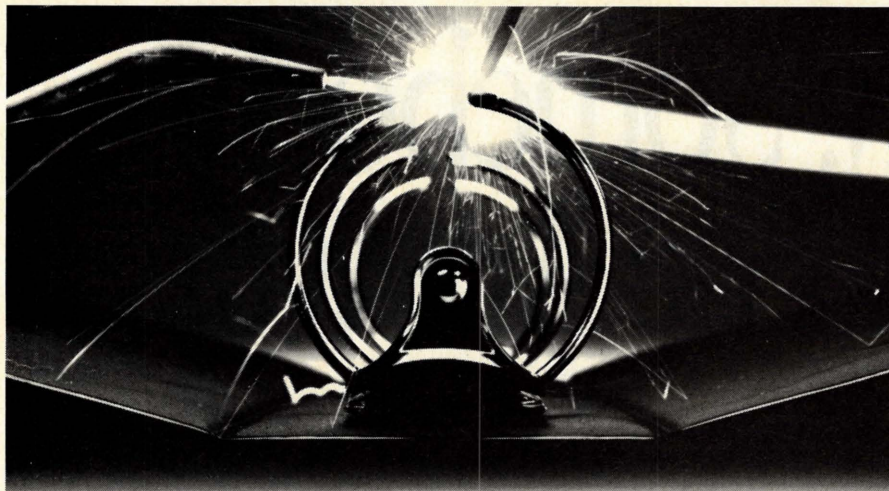
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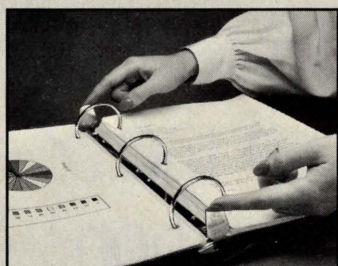
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CIRCLE READER SERVICE 33



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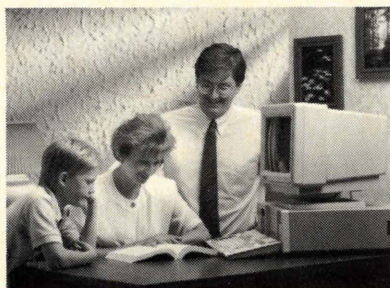
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CIRCLE READER SERVICE 36

VIEW GRAPHIC CHARTS ON-SCREEN

Since *CIM* supports CompuServe's on-line graphics format, you can view weather maps, trend stock charts, and other images on your screen. The Message Map, which displays message-and-reply threads as a graphical tree in the forums, is a good innovation, making it much easier to follow conversations you might otherwise miss.

The electronic mail feature is also good. You can opt to download all new messages into your New Mail box (actually a subdirectory on your computer) for leisurely review when you sign off. You can also prepare messages off-line for high-speed transmission en masse. *CIM* includes its own word processor, though any that create pure ASCII text files will work.

CIM works superbly with the CB Simulator, an on-line "conference room" where several users can chat by typing comments. There's a window for incoming comments and one to prepare your outgoing remarks, so several people's comments don't become scrambled. You can quickly find out who's on a channel and, with a simple keystroke, call up his or her miniprofile (if one has been submitted). Whenever someone else tunes in to your channel, you are notified in a line at the bottom of the screen. I've never seen software handle CB better.

CIM IS SLOW!

The major drawback to *CIM* is that it is *slow*. I'm not talking about data transmission speed. I was on at 11:00 P.M. eastern time, which should have put me past the system's "rush hour." But even so, I waited for *CIM* to execute commands. I signed on with *ProComm* moments later and was able to zip around the system.

With most software, slowness is merely irritating. But a slow communications package costs you money, since you are paying by the fraction of the minute. The worst moments with *CIM* are when you want to leave one section for another—it's like waiting for a bus.

I have no doubt that *CIM* is a step in the right direction for CompuServe. Certainly its manual is the best system documentation the company has ever produced, though its extensive index has some curious omissions. There is no entry for CompuServe's own B Protocol file transfer, for example, and "Downloading" refers you to a page about downloading financial data files. The program uses expanded memory, if available, but there is no "EMM" entry. And so on.

The problems I experienced getting the package to run on one machine will certainly be solved in future releases. In fact, I can only see *CIM* getting better. It certainly should help novices sign onto CompuServe and use it. Once they're on, however, they might decide to switch to the old-fashioned command system to save time and money. ■

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Catch Their Eyes with Print Ads

BY RONNIE GUNNERSON

Using Yellow Pages, Newspapers, and Magazines to Get Your Message Across

What makes your product or service stand out from the competition? The answer to that question should be the focus of your advertising campaign. And when you're trying to get your message across in print, the headline is your most important device. The best headlines offer a benefit to the reader or contain news. "On average," writes advertising mogul David Ogilvy in *Ogilvy on Advertising*, "five times as many people read the headlines as read the body copy."

Keep your campaign simple, says Kate Magee, an account executive with Cliff Freeman and Partners, a division of Saatchi & Saatchi. If your product or service differs from those of your competitors in several ways, focus on the one or two features that really make your product or service stand out. The clearer your message, the better.

Once you iron out the details of the ad campaign, your next question is, How much do I spend? Advertising budgets are usually based on a percentage of sales. A small business may allocate anywhere from 2 to 10 percent of sales earnings to advertising.

YELLOW PAGES

Next comes ad placement. Advertising executive Mary Tchakirides advises that you begin by turning to the yellow pages. Common sense should prevail, of course, says Tchakirides. If you're consulting for high-level management, the yellow pages are not for you. If, however, you design gorgeous gift baskets for the corporate market, the business-to-business yellow pages are where you should advertise. If you run a house-cleaning service, advertise in the consumer yellow pages.

Remember, telephone books are issued once a year, so plan ahead. The cost depends on circulation and ranges from location to location. The rate in Toms River,



New Jersey, will be far lower than the rate in New York City, for instance. No matter how expensive, it's worth it. The yellow pages are the most cost-effective advertising vehicle you can use. Call your local telephone company for rates, closing dates, and specifications.

Creating your display ad for the yellow pages is as simple as toggling to the graphics program residing in your hard disk. If you don't have one, your local Sir Speedy or its equivalent can design a simple ad.

MAGAZINES AND NEWSPAPERS

Consider investing in graphics software if you want to advertise in newspapers and magazines or design direct-marketing fliers and brochures. You may prefer to hire a professional graphic designer (see *Business 101 in the March 1990 issue*). Conceivably, it could cost even less to hire a designer than to buy a new program. Keep in mind, however, that the purchase price of the software will be amortized over the number of times you design a new ad. And the money you don't spend on design can buy more ads.

If you do design your ad, be creative with your copy, not your graphics—unless you have professional expertise. Keep it clean and simple to avoid violating design principles

and turning off your audience. There's nothing wrong with following the examples of successful print ads you've seen.

To decide which publications to use, look to your original research defining your target audience. Whatever magazines that audience reads religiously are the ones you should advertise in, as your budget permits. Turn to the Simmons Study of Media and Markets, a copy of which should be available in the business reference section of your local library. Published annually by Simmons Market Research Bureau, the book can tell you everything you always wanted to know about consumer product usage—for example, how many tubes of toothpaste were bought where, when, and by whom. By simply studying usage patterns, you may discover that the stunt kites you're manufacturing for families in Chicago would be in even greater demand with surfer types at a coastal resort like Nags Head, North Carolina.

To take your research one step further, go to the place where your product or service will be sold, advises Magee. "If you're selling photographic services, stand outside a photography studio for a few hours and see who's going in."

Go for frequency rather than four-color design, by the way. If it hits only once in a while, the most beautiful ad in the world will draw far fewer responses than a simple (but attractive) ad that people see over and over again, says Tchakirides.

Another guide to ad placement is your competition. Where do your competitors advertise? You should be there, too, emphatically stating your point of difference. Once you've established a strong print campaign, you'll be ready to explore the possibilities of radio, television, and direct mail—the topics of our next Business 101 departments.

In the meantime, to begin developing your advertising strategy, Magee recommends several books that will help you shape an effective campaign: *Ogilvy on Advertising* by David Ogilvy (\$14.95; Vintage Books; 1985), *Positioning: The Battle for Your Mind* by Al Ries and Jack Trout (\$9.95; Plume; 1989), and *Maximarketing: The New Direction in Advertising, Promotion & Marketing Strategies* by S. Rapp & L. Collins (\$9.95; Penguin; 1989). ■

ADVERTISING SERIES TOPICS

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RONNIE GUNNERSON is a contributing editor for HOME-OFFICE COMPUTING.

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CIRCLE READER SERVICE 34

Move Your Mouth To Build Your Business

BY PAUL & SARAH EDWARDS



Networking is the best way to start and build a small service business. Face-to-face contact establishes relationships that lead to business. Once a business is established, you get word-

of-mouth referrals from satisfied customers. But until a business is self-sustaining, "word-of-mouth" means moving *your* mouth. You've got to tell family, friends, colleagues, and vendors about your business and make a concerted effort to meet and talk with new people.

Though most successful home-based businesses are built on word-of-mouth marketing, we've found that many business owners frequently overlook networking. Far too many start-ups rely entirely on advertising and direct mail and wonder why they don't get enough business. Consequently, many start-ups run out of money or just give up, figuring there's no market for their product or service.

So why is there such resistance to this useful marketing method? Going to a party with strangers is one of the most frequent sources of anxiety in social situations. We suspect misgivings about networking stem from a similar anxiety. Here are four common misgivings we hear about and fresh ways of overcoming them.

DEMISTIFYING NETWORKING

1. I Don't Have Time to Network.

Wouldn't we all prefer to field phone calls from people eager for our service? Of course. But if the phone isn't ringing, networking is the best way to make it start ringing.

Staying current in your field is mandatory. If you make networking part of an ongoing investment in keeping up-to-date on your specialty, you can combine marketing with business and professional activities.

Contributing editors PAUL & SARAH EDWARDS are authors of Working from Home (Jeremy P. Tarcher). They run the Working from Home Forum on CompuServe and cohost the "Home Office Show" every Sunday night on Business Radio Network.

2. I Don't Like to Mix Business with Pleasure.

Most people don't. But how often does someone ask you, "What do you do?" How often do you ask someone what they do? That question is an invitation to network. Most people are eager for a chance to talk about themselves and are flattered when someone else takes an interest.



**Word-of-mouth
marketing is often more
efficient than
advertising.**

3. I Don't Want to Be a Pushy Salesperson.

Networking is not selling. Networking is meeting people and establishing relationships. It's finding out if people are in the market for your service, not immediately attempting to sell it. Selling comes later.

4. I Don't Like to Sell—Period. Networking is the ideal way for someone who hates to sell to get business. By the time you get the opportunity to sell, you may have established a relationship. You have already identified some interest in your product or service. The selling job is half done.

A POSITIVE APPROACH

Some people wonder why they don't get better results from their networking efforts. Here are four positive steps you can take to overcome common networking mistakes.

1. Stop Waiting for Something to Happen.

We often hear people complain that they've attended various events hoping to network but "didn't meet anyone." In probing further, we find these people are approaching the event as a guest. Instead, act like the host, greeting people yourself. Striking up a conversation can be as simple as saying, "Hi, I'm Paul. Are you a member of this group?" or "Are you a friend of Sarah's?" or "Do you come here often?" If you smile and extend your hand, 99 percent of the people you meet will smile back and introduce themselves.

2. Open the Door to Conversation. Have you ever met someone who, in describing his or her job or profession, leaves you completely in the dark? Such conversations end quickly because you don't want to appear foolish. You're likely to nod and scurry off saying, "Nice to meet you."

Don't make the same mistake yourself. Practice introducing yourself in a simple 25-word statement that provokes interest, using terms an eighth grader will understand.

For example, instead of saying, "I am the president of LegalTech. I install third-party vendor systems for vertical markets," say something like, "My company is called LegalTech. We help lawyers gain the skill and confidence to use a computer easily." Bang! That starts a conversation.

3. Cool It. If you're too much of a go-getter, people get up and go—away. No one likes to feel as if they are No. 100 on your list as you make a mad dash to "work the party." Take your time, meet and enjoy fewer people. That will pay off more in the long term than glad-handing your way through the room.

4. Keep the Fire Burning. Some people burn out on networking. They try to squeeze in several power breakfasts and several dinner meetings every week. Dragging yourself to so many events is exhausting. And when you're exhausted, you won't convey interest and excitement about your business. Two well-selected events per week are ample for most full-time business people and will leave you time and energy to follow up.

Networking won't produce immediate prosperity, but it's a surefire, low-cost way to get a business started. ■

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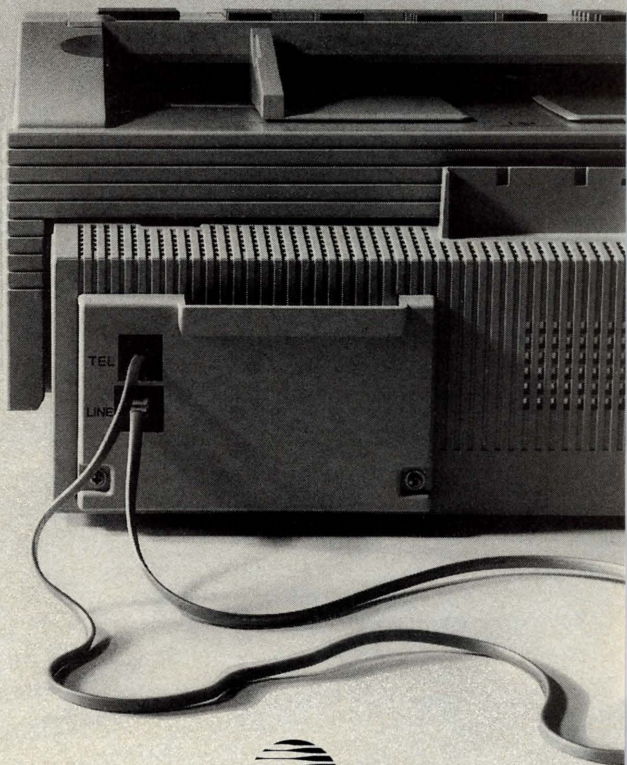
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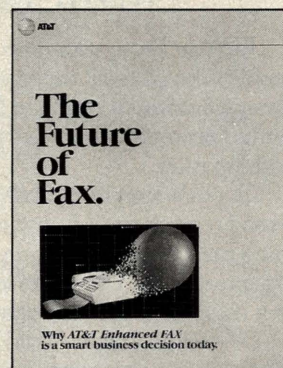
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HOC

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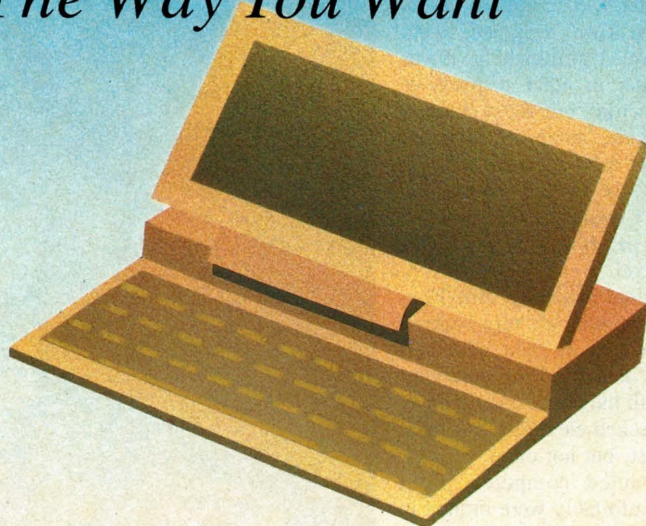
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CIRCLE READER SERVICE 53

Office on the Go

*Work When You Want,
Where You Want,
The Way You Want*



BY EDWARD P. STEVENSON

Whatever your working needs—accessing data, collecting data, presenting data, telecommunicating, printing, faxing, phoning—tools now exist that will let you do it on the road, whether that's every day, once a week, or once a year. This guide is an exploration of equipment. It is also an exploration of choices.

Computers are tools: powerful extensions of ourselves that let us do more, producing better results with less effort.

For me, as a writer and editor, the miracle of these tools is summed up in my never again having to retype anything. By rough calculation (if I live as long as I plan to), computers will end up giving me back 19,000 hours of my life to devote to other things. I call that liberation!

When these tools first became available to us, we paid a price for their power: They tied us to a desk and an electrical outlet. This didn't seem much of a price, and we paid it happily. But from the beginning, an even greater liberation was taking shape.

Quite early on, manufacturers of personal computers turned their attention to making them smaller and lighter and packaging them more ruggedly: They designed computers to travel. And so we began to have choices; we could be freed from our desks.

The first computer I ever bought was a "portable." That is, it was designed, like a tank, for rough travel. Unfortunately, it was designed like a tank in other respects as well. I remember setting out for a summer weekend at the beach, computer in hand, thinking I might get a bit of work done in quiet moments. By the time I arrived, my arm hurt so much I couldn't put on suntan lotion, let alone type. It wasn't a tool for casual weekend travel.

Nonetheless, around that same time I began to see people working on tiny battery-powered computers that fit right into their briefcases. Would this kind of computer serve my needs in all the nooks and crannies of the world that lacked electric plugs? The answer was, Almost, but not quite.

People who wanted computers light enough to carry comfortably were limited in their choice of software, in the size of files they could create and the length of time they could work, and they had to deal with complicated file-transfer procedures. The list of trade-offs was too long for me.

Those were the good old, bad old days. Today, we're close to having computers that are as powerful as and totally compatible with our desktop computers, as well as being light enough to carry comfortably. Of course, the question of what is light enough to carry comfortably is always going to be moot, but the point is that where we once had few choices we now have many. The computer has truly become a movable beast. If you want to work on a report during your flight from Des Moines to Duluth, if you need to record data 200 feet under water in your one-man submarine, you can—without taking out a second mortgage.

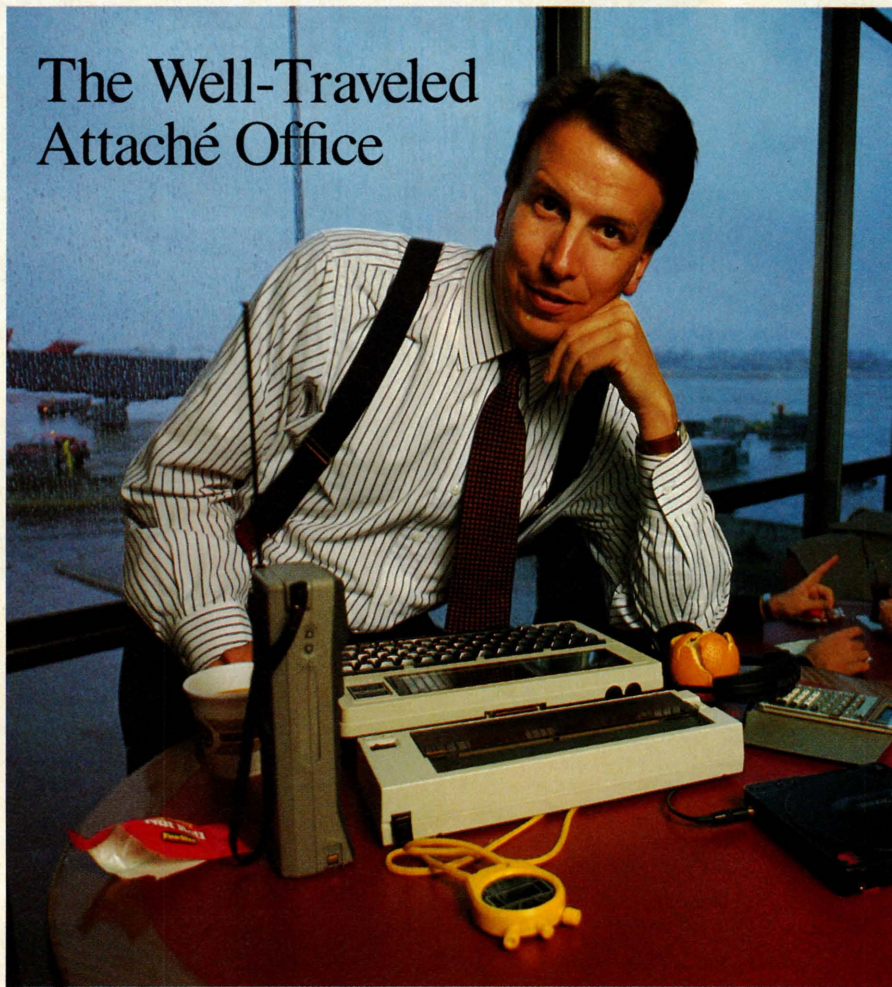
What's more, today there is a portable version of just about every high-tech tool we've come to depend upon. Whatever your

working needs—accessing data, collecting data, presenting data, telecommunicating, printing, faxing, phoning—tools now exist that will let you do it on the road, whether that's every day, once a week, or once a year. This guide is an exploration of equipment—and an exploration of choices.

In "The Home Office Away from Home," Seattle-based writer Rebecca Rohan delves into the current universe of por-

table equipment and some alternatives to buying and toting your own. In "Have Phone, Will Travel," Loretta Hall provides a basic education on the trendy technology of phones that go with you. Finally, in the Buyer's Guide, "Battery-Powered Portable Computers," Steven Chen and the rest of HOME-OFFICE COMPUTING's staff give you a comprehensive look at today's crop of powerful portables.

The Well-Traveled Attaché Office



Technology consultant Gary Smaby's office travels with him wherever he goes.

During the eight years that Gary Smaby worked as a Wall Street computer analyst, he found his home office a welcome sanctuary from trading room mania—an occupational hazard in that profession. As years passed and computers got smaller, Smaby's working definition of *home office* expanded to include any place outside the "real" office where he could set up his portable computer.

Smaby eventually formed his own technology-venture-advisory and industry-research firm in Minneapolis, taking full advantage of the latest technology. Since this enterprise keeps him on the move, Smaby now defines his home office as anything that will fit in his briefcase.

His slightly frayed and overstuffed canvas "attaché-office" has logged more than half a million air miles toting the following collection of battery-powered high-tech gear (not all of

which is the latest technology):

- Tandy TRS 80 Model 100 computer
- Panasonic portable fax
- NEC cellular phone
- Sony CD player (for screening out crying babies on airplanes)
- Olympus Pearl-corder microcassette recorder
- Texas Instruments Business Analyst (calculator)
- Tandy pager
- Classic stopwatch/clock
- Lotus Airdaptor (for free airline movies)

Relying on his portable office equipment as a link, Smaby relocates his family to the pleasant climes of San Diego during the winter months and telecommutes to the main offices of the Smaby Group in Minneapolis. During those months, his home office is frequently on a beach north of La Jolla, California, where he keeps in touch with the world via his "bike phone" (his NEC cellular phone mounted on his all-terrain bicycle).

EDWARD STEVENSON is senior technical editor of HOME-OFFICE COMPUTING.

The Home Office Away from Home

BY REBECCA ROHAN

Who Needs Portable Equipment? Plus Five Strategies for Traveling Light While Working Smart

You're living the dream of the nineties: You've taken home the power that once belonged to an employer and created a command center in your own home. The decisions are yours. The success is yours. Talent, tenacity, and technology have set you free. Suddenly you want all that power at your fingertips wherever you are. The marketplace applauds you and provides sleek computers half the size of a briefcase, printers that weigh less than four pounds, and phones that travel from city to city. Wherever you are, you can accomplish anything. Your office is now the world. When you board a plane, ultraslim laptop in hand, you know the force is with you.

But in real life, dreams tend to take on mass and hard edges. You have the laptop, the portable printer, and the cellular phone at the airport, but you've also acquired a pocket modem, disks, battery packs, chargers, AC cords, and special paper. You'd like to stop for an espresso before you lumber down the ramp to board your plane, but there's no place to park this \$8,000 collection of space savers.

TODAY'S TECHNOLOGY

The slimmed-down technology available to today's mobile business person is seductive, but it's also useful. You'd like to make your travel or commuting time more productive. Who wouldn't? Why fight bulging file folders on a train or plane when a seven-pound laptop computer can hold everything you might possibly need? And sure, there's a pay phone on every corner, but a cellular phone in your car (or briefcase) means you can be reached when you're stuck in traffic—whether it's an emergency or an opportunity calling.

Sales of portable office equipment are driven by people's desire to get the job done once and get it done now; to avoid hours spent transcribing voice tapes or keying in handwritten notes, to have access to the data that lets them respond to that inquiry now. Delays and duplications are more than sim-

ple aggravations; they cost you money. The potential for avoiding wasted time, duplicated effort, lost business, and dissatisfied customers seems to justify an investment in some of the glamorous gadgetry. But who should buy—and what—and how much?

Answers, of course, depend on the specifics of your business and on how far and how frequently you travel, when and where you work. For some, the benefits of owning portable office equipment are clear.

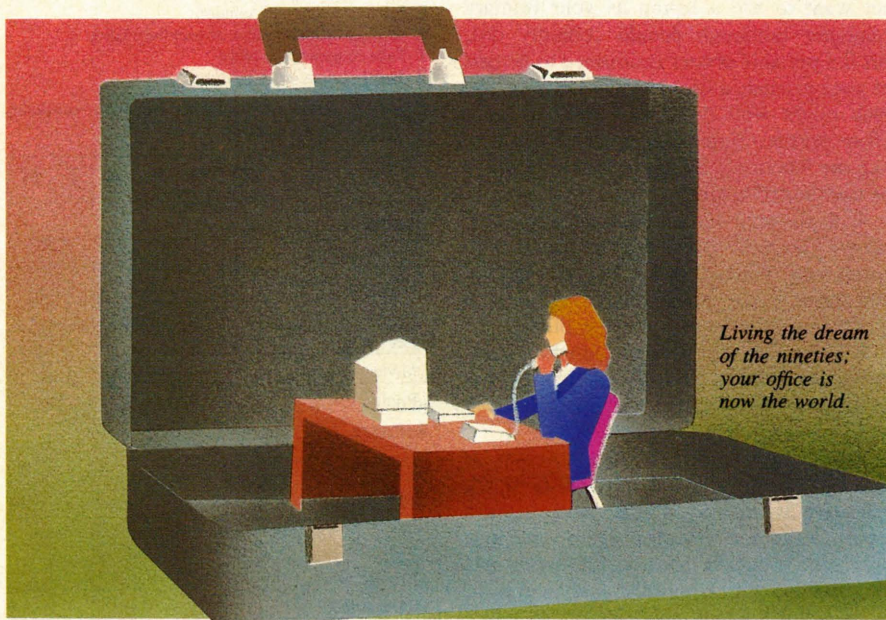
WHO NEEDS IT?

Certified public accountant I. Robert Lichtenstein left the comfortable environment of a large accounting firm several years ago to go it alone. "Accounting is a labor-intensive business," he points out, "and the computer allowed me to offer a fuller range of services, do a higher volume of work, and handle more complex returns and reports than I could possibly have done without it." Lichtenstein's first computer was a \$25,000 multiuser system he purchased when he set up his own business. Recently, he acquired a

likes best—work—during the hours before it's time to head for the office.

Judith Langer, principal of a successful qualitative research firm and self-confessed technophobe, spends almost one-half of her working life on the road. Until recently, she occupied her air-travel time writing reports and proposals by hand. These she faxed or "overnighted" back to the office, where staff would decipher the manuscripts and key them into a PC-based word processor for further editing. The Toshiba T1000 laptop that Langer acquired recently has revolutionized her work life and reduced office overhead dramatically (she no longer has to hire temps).

"I hate lugging the weight," Langer says, "I'm not wild about having to buy a separate software package so I can see the cursor, and I worry about running out of battery power in midflight, but the laptop speeds up work unbelievably. This little box easily paid for itself in the first two or three months." When something lighter becomes available, Langer will be in line to buy it.



Hewlett-Packard Vectra portable with a 40MB hard-disk drive. "The laptop has given me flexibility; it's been a great investment," Lichtenstein reports. With it he carries his sophisticated accounting software directly to clients' offices, where he can plug in their data, print out reports on the spot, and run spreadsheets. The laptop even travels home with him at night. In fact, this is where it gets its hardest workouts. Lichtenstein is an early riser (he gets up around 3:00 or 4:00 a.m.), and the Vectra lets him do what he

WHO DOESN'T?

For another business, the picture may look quite different. Dave and Sybil Danner, who run a mail-order rare and out-of-print book-search service from home, needed a solution for Dave's periodic buying trips to other cities. "When we first started," Dave recalled, "I carried a printout of the titles we had and the titles we were looking for. But Sybil didn't know what I was buying, so if someone called while I was on the road, we sometimes lost sales."

REBECCA ROHAN is a freelance writer who lives in Seattle, Washington.

ILLUSTRATION BY BOB CONRAD

Now Dave keys in new titles every evening on his buying trips and uses a modem to upload the data to Sybil. But instead of taking a laptop, Dave rents a computer in advance in the city he'll be visiting and uses the savings to beef up their home-office system. "I've just replaced the 1200-baud modem at home with a 2400-baud, like on the machines I rent. Now I can transmit data home twice as fast. We may get a laptop one day, but this works fine for now. Besides, I love traveling light."

The Danners thought about their needs, weighed the alternatives, and came up with a solution that helped them run their business better without a heavy investment in equipment—and it kept their life simple.

TAILOR-MADE SOLUTIONS

How can you find the best solutions for your business—optimizing portability, price-effectiveness, and power?

1. Plan for travel needs before you need to travel. Looking to the future when equipping your home office can pay real dividends down the line in system compatibility: If you're even remotely considering a laptop for the future, buying a desktop computer with a 3.5-inch floppy-disk drive—or the space to add one—is a sound move.

Further, with planning, you can cut down the number of items you buy just by eliminating unnecessary duplication. You might not want to use a laptop as your primary computer (although people certainly do), but if a portable printer is destined to be part of your arsenal, a unit like the Diconix 150 Plus might well do double duty as your office printer. Some desktop fax machines, like the Panasonic KX-F80, are designed to be transported easily.

And planning for on-the-road work also allows you time to research alternatives to purchasing. Points 2 and 3, below, can help you pack more practical power without picking up more bags—or more bills.

2. Determine your needs by function, rather than by product. Consider the job that has to be done, then brainstorm low-tech, mid-tech, and high-tech solutions.

If you have to record large amounts of data on your travels—or if you'll be doing extensive writing—you may really need a laptop computer. But then again, you may only need a pocket tape recorder—or a pen and pad. Do you require the analytical power of a full-function spreadsheet, or will a hand-held calculator serve your number-crunching needs? Do you really need to take a PC, a modem, and phone couplers into a hotel room, or can you call orders home at the end of the day? Even if you have no staff (or spouse) to take the call, you can leave information on your answering machine; it will be waiting when you return. Another communications alternative: Write up orders and fax them to the home office. This doesn't mean you have to take a fax machine with you. Most hotels offer fax

service (although they charge plenty). A cost-effective alternative is copy shops, many of which offer fax service at reasonable rates. (In New York, copy-shop fax prices run as low as \$3 for the first page, \$1 per additional page for local calls; \$5 and \$1 for long-distance. Be sure to shop around; prices vary widely.)

You can save a bundle—and a backache—by thinking *function* first, *equipment* second.

3. Use the high-tech resources available at your destination. You've determined that you need some high-tech equipment on your next trip, but do you have to take it with you? Laptop computers and other highly portable devices are hard purchases to justify for people who don't travel often. You can avoid unwarranted expense and wear and tear on your body if you arrange to have some or all of the equipment you need—even a whole office—waiting at your destination. Just pocket your plane ticket and your disk carrier and go.

For as little as \$10 an hour or \$50 a business day, business travelers to Seattle can rent a temporary office suite with its

BEFORE YOUR NEXT TRIP, PAUSE FOR BREATH

Legend:

- B** Buy before departure
- R** Rent before departure
- E** Eliminate high-tech solution
- A** Arrange to have waiting at your destination
- T** Take equipment you own
- H** Hotel equipment or services

If you checked any red columns, mark your calendar to prepare in plenty of time.

	B	R	E	A	T	H
Hardware						
Cellular phone						
Computer						
Copier						
Fax						
Modem						
Printer						
Software						
Database						
DOS						
Formatted disks						
Integrated						
Remote access						
Spreadsheet						
Utilities						
Word processor						
Other						
AC adaptor						
Batteries						
Car adaptor						
Charging unit						
Disk box						
Interface cables						
Paper						
Ribbon						

own computer and have access to a full complement of office equipment at no extra charge. Call ahead to find out what you can leave behind, what equipment you can get your hands on, whether secretarial support is available, and which services are included in the price. Check Office & Desk Space Rental Service in the yellow pages.

Be sure to make reservations in advance. And be sure to bring your own software. You can't (legally) rent that. (Tip: If you travel with DOS backups of your software, bring a copy of the DOS you used to make the backup; you won't be able to restore your files if the DOS version on your rented computer is different.)

Some hotels make it elegantly simple to leave equipment at home. Chicago's O'Hare Hilton offers IBM PS/2 color-display workstations with printers. Fax machines, typewriters, photocopiers, audiovisual equipment, office supplies, secretarial service, notary service, and express mail are also available. Some hotels that don't offer computers will let guests use their printer.

If you'd rather not rent a hotel room and an office suite, you can simply find a place to stay, then rent a computer and whatever other equipment you need. In New York, an IBM-compatible with a 20MB hard-disk drive runs \$100 to \$175 by the week. Mac users can rent an SE with a hard drive for \$150 to \$210 per week. (Daily rentals are available, but at roughly 80 percent of the weekly charge, they're not economical.) Computer rental services also rent printers and modems. Check the yellow pages under Computers-Dealers or Computers-Renting & Leasing. To avoid unpleasant surprises, be sure to call ahead and reserve your equipment in advance.

Travelers flying to Boston (Logan), Chicago (O'Hare), New York (Newark International), or Washington, D.C., (Dulles and Washington International) can now rent portable computers, fax machines, and printers at the airport. Laptop Corp., in a joint venture with Avis Rent A Car, is offering both IBM-compatible and Macintosh portables (and peripherals) at a modest daily rate (\$45 per day for a computer, \$30 per day for a fax machine).

4. Ask questions; take nothing for granted.

When arranging a rental long-distance, remember to cite crucial details such as IBM or Mac, operating system version, floppy-disk size and density, and the hard-disk storage you'll need. If you require a printer or modem or other peripherals, reserve them when you reserve your computer—and find out the total equipment-package cost up front, including delivery charges.

If you plan to use a modem from your hotel room, ask about "connectivity" before making your reservations. You'll need either access to a modular phone jack or modem couplers that fit the handset in your room. Ask about the quality of the phone connections from the hotel. (For a fuller

discussion of modems and hotel rooms, see *Hotels and High-Tech Travelers*, on page 14 of the April 1990 issue.)

5. If you decide to buy, buy smart. The purchase of portable office equipment may or may not be justified in economic terms. It's not difficult to estimate the cost of renting equipment you'd use for a typical trip, multiply that figure by the number of trips you make in a year (or two years), and subtract the total from the cost of the item in question. But that may not tell the whole tale. In deciding to purchase or not to purchase, you are really putting a price tag on convenience: An equipment purchase may not be justified in dollars and cents, yet the convenience of being able to work when and where you choose may outweigh strict economic considerations. On the other hand, even when it would be cheaper to own and

carry the equipment, the convenience of not having to transport it may be paramount.

If you do decide to buy, take time to think through your priorities. If a specific technical feature—a VGA display, for example—is vital to your work, you'll choose a different computer than someone whose first priority is lightest weight, lowest cost, expandability, or availability of service. This is the time to ask yourself:

- Does it have to be the lightest or just light?
- What am I willing—or unwilling—to give up for a low price tag?
- What extras will I have to buy to make it functional?
- How does it fit in with the equipment I already have?
- Will it (a laptop computer) run my software—or file-compatible software?

• Will this unit still fit my needs two years from now?

- How long can I afford to wait for repairs?
- Do I really need toll-free technical support?
- How much will it cost to replace batteries, ribbons (or ink cartridges), or special paper?
- How widely available are replaceable components?

There are enough product choices out there today that we should be able to get what we need. We shouldn't have to sacrifice reasonable performance for a reasonable price or functionality for portability.

You don't have to know where you're going—just what you want to accomplish when you get there. Buy, borrow, or improvise—you can tailor both high-tech and low-tech solutions to your unique needs . . . but only if you plan ahead.

Have Phone, Will Travel

BY LORETTA HALL

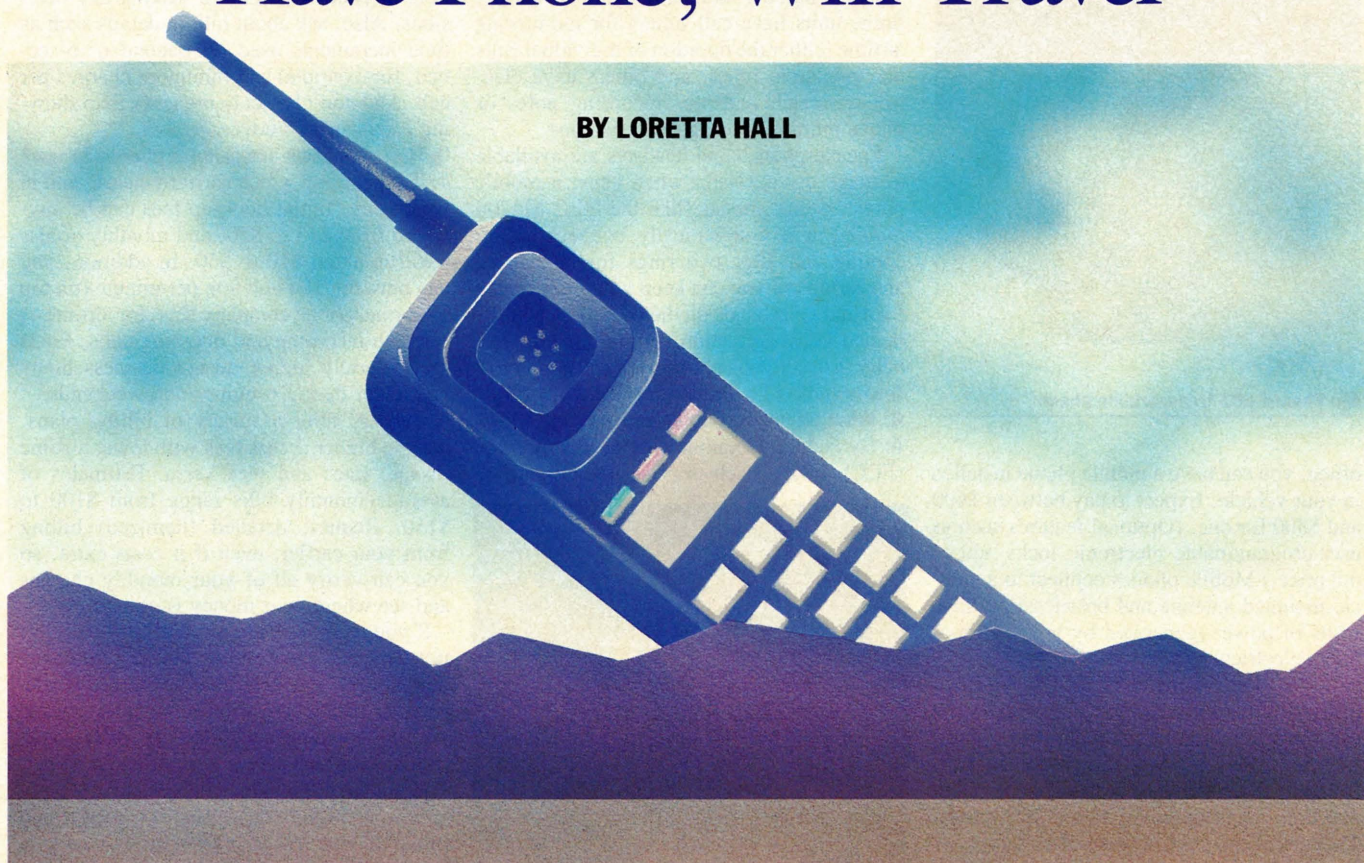


ILLUSTRATION BY BOB CONRAD

A Primer on Cellular Phones

Cellular phones used to be status symbols for the upper echelon. Today they are recognized as productivity tools for business people on the move.

Consider this scenario: You're in your car in the middle of a traffic jam. People are

honking all around you. You're on your way to a meeting with a prospective client you've been courting for months. You desperately need to get to a phone to explain that you'll be delayed. But where are you supposed to find one in the middle of bumper-to-bumper traffic? As you sigh in grief, you glance over at the man in the car next to yours. He doesn't mind this sea of cars; he's talking on a car phone—probably closing *his* big deal.

If *you* had a cellular phone, your deal might not be slipping through your fingers.

But before you run out to buy a cellular phone, it might be a wise idea to become cellular literate first. Here's a basic course to get you started.

Q: How does a cellular phone work?

A: A cellular phone is actually a low-powered radio transmitter/receiver that connects with

the telephone company's lines via a network of antenna towers. The area served by each antenna is called a cell. As a user travels from one cell to another, the conversation is automatically "handed off" to the antenna in the next cell.

Cells can be large, serving phones within a 50-mile radius, but are often smaller within cities, since the number of concurrent conversations a cell can handle is limited. Interference from hills, tunnels, and tall buildings may also require the use of smaller cells.

Be aware that cellular service is currently available to only about 75 percent of the U.S. population, in 305 Metropolitan Service Areas (MSAs). Eventually, it will be extended to the rest of the country.

Q: What is the difference between a mobile phone, a portable phone, and a transportable phone?

A: The major differences are in size, weight, and the amount of power (in watts) needed for each phone to operate.

If you plan to use your car as a mobile



Oki Phones 692 transportable phone

office, you can have a mobile phone installed in your vehicle. Expect to pay between \$600 and \$800 for one. (Optional features such as user-programmable electronic locks add to the price.) Mobile phones connect to a vehicle-mounted antenna and broadcast on three watts of power (generated by your automobile's electrical system).

If you don't want to be tied to your car (any more than you are to your office), you can carry a portable, or hand-held, phone with you. Portables are self-contained units (roughly the size of a cordless phone handset) that weigh between 23 and 32 ounces. They broadcast on 0.6 watts of battery power. Battery packs are detachable and rechargeable, so you can carry spares. (Vehicle adapters allow some portables to operate temporarily as three-watt mobile phones, utilizing the car's antenna and power supply.)

Portable phones are expensive—good mid-range models can cost more than \$1,000. Battery capacity, size, and weight are all features that may influence cost. Take Motorola's ultracompact, fold-up MicroTAC, for example: It's the size of a well-filled billfold and costs around \$2,000.

If you need the power of a mobile phone but want to use it outside the vehicle, in more than one vehicle, or in temporary offices, such as construction sites, get a transportable phone. They consist of handsets connected to transceivers; you can plug them into a vehicle's cigarette lighter or use a rechargeable battery pack (they operate on 1.5 to 3 watts of power). They weigh between 5 and 10 pounds and are about the size of a shoe box. Transportables are comparable in price to mobile phones.

Many manufacturers now offer phones that easily convert between mobile and transportable modes (like Fujitsu's Commander models ST and FX), or between mobile and portable modes (like the Mitsubishi 900RTL). Audiovox's model CTX-5000 Triple Play (\$1,995) is convertible among all three modes.

Q: What features do cellular phones offer?

A: Cellular phones have features similar to those of conventional phones; almost all mobile, portable, and transportable phones provide last-number redial and memory dialing. Some units have call timers for monitoring airtime (either the duration of individual calls or cumulative time), and others have electronic scratch pads for recording notes or phone numbers during conversations.

Speakerphones and headsets are available to make driving safer when using a mobile phone. Some phones (like the NEC M4700 mobile) will automatically connect an incoming call after two rings for hands-free answering (so you can keep your eyes on the road and your hands on the wheel). A sophisticated voice activation feature lets you verbally instruct your phone to dial a number (a few brands, like Uniden, offer this feature).

Q: What phone service do you sign up with?

A: By Federal Communications Commission (FCC) rules, each service area must be



NEC M4700 mobile phone

served by a Bell affiliate (the "B" or wireline carrier) and an alternate carrier (the "A" or nonwireline carrier).

Besides these two licensed carriers, in some regions other companies buy blocks of cellular phone numbers from carriers at wholesale rates and resell them to the public.



Motorola MicroTAC portable phone

In some instances, because of state regulation of wholesale rates and the fact that resellers don't have to build or maintain antenna systems, they can charge customers less than the carriers' retail rates.

Compare the services and rates of the carriers in your MSA before making any decisions. Also, ask about billing details such as time increments used (30-second or 6-second, for example) and minimum charges per call. And don't forget to request a map showing each carrier's coverage area.

Q: How expensive are cellular phones to use?

A: It depends on which carrier you use, and in which city. Initial hook-up fees can be anywhere from \$15 to \$50, and monthly access fees run about \$10 to \$50. In addition, you pay between 10¢ and 90¢ per minute (on top of normal phone company fees) for airtime—for both incoming and outgoing calls. Rates are generally higher during business hours and lower during evenings and weekends.

Carriers offer a variety of billing plans, pairing higher access fees with lower airtime (usage) rates and vice versa. Estimates of average monthly bills range from \$100 to \$150. Request detailed (itemized) billing from your carrier, even if it costs extra, so you can verify all of your monthly charges and see where your money is going.

If you travel outside of your home service area and use the cellular phone service in another area, you are "roaming." So, if you go to an area where your home carrier has a roaming agreement with a local carrier, you can use their service for a fee of about \$2 per day plus visitor airtime charges (which typically are higher than regular subscriber rates). If your home carrier doesn't have a roaming agreement where you want to use your phone, you'll have to call a local carrier yourself to arrange for temporary service. If you frequently use your phone in two or more service areas, you may be able to save money by subscribing to local service in each area. The number of different phone numbers your phone can handle depends on the model; Technophone manufactures some units that can handle up to eight numbers.

Q: Can you use a portable computer or fax with a cellular phone?

A: Yes, with mobiles and transportables, although airtime charges make it relatively expensive. Most new mobile and transportable phones come equipped with the necessary interface (an RJ-11 jack).

A few manufacturers offer cellular workstations combining a phone with a fax and/or a PC and modem in a compact case. Prices are high—ranging from \$4,000 to \$9,000.

BEGINNING YOUR SEARCH

Shop around for a dealer who is knowledgeable and will demonstrate a variety of phones for you. Beware of bargain prices that could reflect a low-quality phone or a close-out model. Don't forget to ask about warranties and service plans.

Carriers sometimes sponsor sales promotions that link bargain phone prices with

long-term service contracts. Be wary. While you might pay very little for a phone, you might end up spending more than you saved in higher service fees—or in penalties if you're unhappy with the service and terminate the contract early.

Some respectable brands of cellular phones are practically household words, like GE, Mitsubishi, NEC, Panasonic, and Radio Shack. Others, like Hitachi, OKI telecom, DiamondTel, NovAtel, and Nokia-Mobira, may be unfamiliar to you. If you aren't sure about a brand's reputation, call several dealers and ask if the product you're interested in has a record of reliability.

LORETTA HALL is a home-based writer living in Albuquerque, New Mexico. She writes about various technical subjects, including electronics.

FOR MORE INFORMATION

Cellmark Publishing Company offers the *North American Official Cellular Users Guide*, a 200-page book containing general information about cellular phones. It details coverage areas, services, and local and roaming rates for all carriers and MSAs in the United States and Canada. Call (313) 561-3339.

Communications Publishing Service offers two guides for roamers: a national map that details coverage areas and lists the roaming rates of all carriers, and *The Cellular Telephone Directory*, which provides more detailed information on coverage areas and roaming fees for the United States, Canada, and the Caribbean, as well as information about taking your cellular phone to other foreign countries. Call (206) 232-3464.

BUYER'S GUIDE

Battery-Powered Portable Computers

STEVEN C. M. CHEN

A Guide to Selecting the Laptop That's Right for You: Reviews and Features of 16 Models

Lighter is better. A commercial for Weight Watchers? No, it's the credo of people who travel with computers. Portable computers have been losing weight and (unlike people) keeping it off.

How far have portables come over the years? Take two models produced by the same company, seven years apart. The original AC-powered Compaq Portable (introduced in November 1982) had only one 5.25-inch 320K floppy-disk drive, 128K of RAM, and a nine-inch monochrome CRT display; it weighed a whopping 28 pounds. The recently released Compaq LTE is the size of a hardcover novel, has one 3.5-inch 1.44MB floppy-disk drive plus a fast 20MB hard-disk drive, is powered by a battery that lasts more than three hours, weighs less than 7 pounds, and is twice as fast as its ancestor. Both models carry about the same price tag (roughly \$3,000), but the new model is one-quarter the weight and one-tenth the size.

As they've been shedding size and weight, battery-powered portables have been improving in performance. Portable computers can now match their desktop counterparts in both speed and storage capacity. But there is still plenty of room for improvement. The newer liquid crystal displays (LCDs), while much more readable than those of the past, still fall short of standard displays. Further, many laptop keyboards are cramped for space. Some trade-offs are inescapable: You can't put a large screen or a full-size keyboard in a small box; and you can't run a portable computer all day without powerful—and heavy—batteries. Nevertheless, manufacturers continue to make amazing progress. Today, models are available with the features to meet just about any needs, however special. Best of all, prices continue to drop.

There are three major classes of IBM-compatible portable computers: notebook, laptop, and transportable. The lightest notebook units weigh less than 4.5 pounds; laptops, 10 to 15; the heaviest transportables, close to 20. In size, the notebook models are indeed comparable to books (of various shapes), the transportables roughly the equal of slim portable typewriters (remember those?), with laptops falling in between. In this guide we will look at battery-powered 8088- and 80286-based notebook and laptop

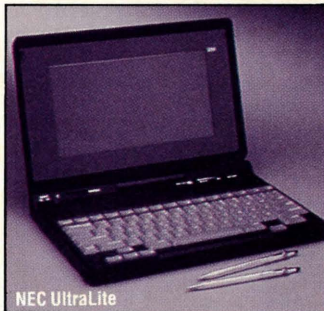
models—the computers that most users consider first when they want a portable one. They offer the greatest flexibility and utility. (The most useful computer is the one that's light enough so you *do* take it with you.)

More than a dozen major companies are currently manufacturing battery-powered portables. The list includes Bondwell, Compaq, Datavue, Dell, GRiD, Hitachi, IBM, NEC, Northgate, Panasonic, Samsung, Sanyo, Sharp, Tandy, Texas Instruments, Toshiba, Zenith, and several others. With so many models from so many sources, making choices is in some ways more difficult than it used to be. Which features are important? Let's quickly review the features that differentiate today's many laptops.

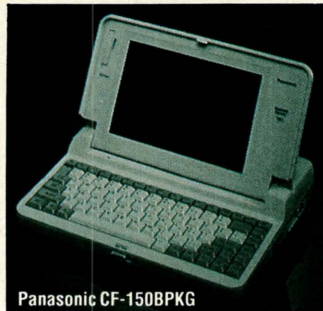
Size and Weight. These items will be at the top of most prospective buyers' lists of considerations. Smaller and lighter usually means trade-offs in power, screen and keyboard quality, and, possibly, storage, so maybe larger and heavier doesn't seem so bad. Keep in mind, however, that in many instances the computer is not just weight, but *additional* weight. Carrying a 12-pound laptop may be fine, but not if it's in addition to 20 pounds of other luggage. And when you're figuring traveling weight, be sure to include the extra battery packs, AC-adaptor/charger, and carrying case (another 1 to 2 pounds) that you'll be taking. A 12-pound

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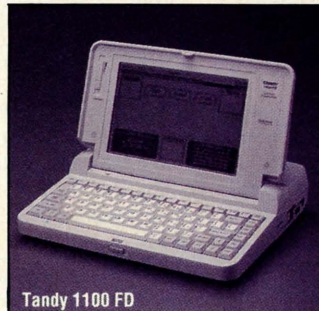
Eight Notebook Computers:



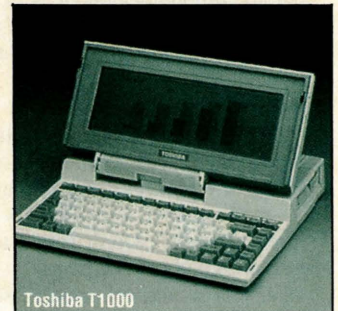
NEC UltraLite



Panasonic CF-150BPKG



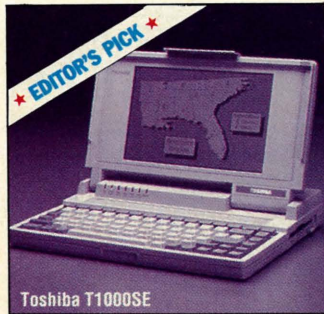
Tandy 1100 FD



Toshiba T1000

	NEC UltraLite	Panasonic CF-150BPKG	Tandy 1100 FD	Toshiba T1000
Suggested Retail Price	\$2,499	\$1,149	\$999	\$999
Rating	***	***	***	**
Microprocessor				
Type	NEC V30	NEC V20	NEC V20	Intel 80C88
Clock Speed/Wait States	9.83 MHz/Zero	8 MHz/Zero	8 MHz/One	4.77 MHz/Zero
Memory (Standard/Maximum)	640K/640K	640K/1.6MB	640K/640K	512K/1.2MB
LCD Display				
Backlit	Yes	Yes	No	No
Screen Size (W by H)	8.25 by 4.25 in.	7.5 by 4.75 in.	7.5 by 4.75 in.	9.5 by 2.9 in.
Mode Support	CGA w/8 gray scale	CGA w/4 gray scale	CGA w/4 gray scale	CGA w/2 gray scale
Maximum Resolution	640 by 200 pixels	640 by 200 pixels	640 by 200 pixels	640 by 200 pixels
External Monitor Port	No	No	No	CGA
Storage				
Floppy-Disk Drive (Size/Capacity)	N/A	3.5-inch/720K	3.5-inch/720K	3.5-inch/720K
Hard-Disk Drive (Capacity/Speed)	1MB/9 ms (silicon disk)	N/A	N/A	N/A
Additional Ports				
Standard (Parallel/Serial)	S	P, S	P, S	P, S
Floppy-Disk Drive	\$399 (includes parallel port)	No	\$499	\$499
Numeric Keypad	No	No	No	\$99
Expansion Box	No	No	No	No
Battery				
Claimed Battery Life	2 hr	1.5 hr	3 hr	2.5 hr
Charging Time	5 to 7 hr	10 hr	10 hr	8 hr
Size and Weight				
Overall Dimension (w/Battery)	11.75 by 8.5 by 1.4 in.	12.2 by 9.8 by 2.5 in.	12.2 by 9.8 by 2.5 in.	12 by 11 by 2 in.
Battery Weight	0.3 lb	0.8 lb	0.8 lb	Fixed
Weight (w/Battery)	4.4 lb	6.4 lb	6.4 lb	6.4 lb
Weight (w/Battery & AC Adapter)	5.6 lb	7.2 lb	7.2 lb	7.7 lb
Software Included				
In ROM	DOS 3.3, LapLink	DOS 3.3	DOS 3.3, <i>DeskMate</i>	DOS 2.11
On Disk	DOS manager	DOS 3.3	<i>PC-Link</i>	DOS 2.11, <i>PC-Kwik Power Pak</i>
Options				
Additional Battery Pack	\$119	\$30	\$30	No
Carrying Case	\$129	Included	\$40, \$50	\$59
Internal Modem (2400 bps)	Included	\$229	\$200	\$349
Memory Upgrade	No	\$499 for 1MB	No	\$399 for 768K
Warranty (months)	12	12	3	12
Telephone	(708) 860-9500	(201) 348-7000	(817) 390-3011	(714) 583-3000
Other Configurations	2MB-silicon-hard-drive model available for \$2,999	Available without backlighting for \$999	None	None
Minireview	At 4.4 pounds the UltraLite is the lightest full-function MS-DOS computer available. It's light because it has no disk drives. Instead of a traditional disk, the UltraLite uses a "silicon hard disk," a bank of RAM chips supported by a special battery. Files are transferred to and from a desktop computer via the LapLink system (included) or with an optional 3.5-inch, 1.44MB external floppy drive. The keyboard is comfortable and well laid out; the backlit LCD screen is readable in most lighting conditions.	Overall, a good, lightweight unit. The single 720K floppy-disk drive will limit the use of large applications unless users purchase the 1MB RAM upgrade, which can be set up as a RAM disk where software can be stored. This laptop provides DOS in ROM. Not all the standard DOS files are included, but this shouldn't bother most users. For people with light computing needs and tight budgets, this is a great product.	Basically the same computer as the Panasonic CF-150 (Tandy manufactures both), the 1100FD comes with <i>DeskMate</i> in ROM. On the surface, a great idea, but with only the single 720K disk, it is difficult to configure applications to run on this computer. Since Tandy gives discounts only during sales and offers only a three-month warranty, the Panasonic looks like a better buy. However, access to service through the extensive Tandy dealer network is a plus.	This is the least expensive full-function notebook computer available. By purchasing the (optional) 768K RAM upgrade, users can get around the limitations of having a single 720K floppy-disk drive: The extra RAM can be configured as a nonvolatile RAM disk and applications can be stored there even when the computer is turned off, as long as the battery is kept charged. After three years on the market, this old horse, though looking less sleek than the newcomers, has plenty of work left in it.

A Side-by-Side Comparison



Toshiba T1000SE



Zenith MinisPort



Bondwell B310



Compaq LTE/286 Model 20

	Toshiba T1000SE	Zenith MinisPort	Bondwell B310	Compaq LTE/286 Model 20
Suggested Retail Price	\$1,699	\$1,999	\$3,695	\$4,619
Rating	★ ★ ★ ★	★ ★	★ ★ ★	★ ★ ★ ★
Microprocessor				
Type	Intel 80C86	Intel 80C88	Intel 80C286	Intel 80C286
Clock Speed/Wait States	9.54 MHz/One	8 MHz/Zero	12 MHz/Zero	12 MHz/Less than one
Memory (Standard/Maximum)	1MB/3MB	1MB/2MB	1MB/2MB	640K/2.6MB
LCD Display				
Backlit	Yes	Yes	Yes	Yes
Screen Size (W by H)	7.63 by 4.75 in.	8.25 by 3.25 in.	8.75 by 3.75 in.	8 by 4 in.
Mode Support	Double-scan CGA w/2 gray scale	CGA w/4 gray scale	CGA w/4 gray scale	CGA w/4 gray scale
Maximum Resolution	640 by 400 pixels	640 by 200 pixels	640 by 200 pixels	640 by 200 pixels
External Monitor Port	No	CGA	CGA	CGA
Storage				
Floppy-Disk Drive (Size/Capacity)	3.5-inch/1.44 MB	2-inch/720K	3.5-inch/1.44MB	3.5-inch/1.44MB
Hard-Disk Drive (Capacity/Speed)	N/A	N/A	40MB/25 ms	20MB/29 ms
Additional Ports				
Standard (Parallel/Serial)	P, S	P, S	P, 2 S	P, S
Floppy-Disk Drive	\$499	\$299	No	\$275
Numeric Keypad	\$99	No	No	\$119
Expansion Box	No	No	No	No
Battery				
Claimed Battery Life	2 hr	3 hr	Up to 3 hr	3.5 hr
Charging Time	8 hr	3 hr	8 hr	8 to 10 hr
Size and Weight				
Overall Dimension (w/Battery)	12.4 by 10.2 by 1.8 in.	12.4 by 9.8 by 1.4 in.	13 by 12.2 by 2.2 in.	11 by 8.5 by 1.9 in.
Battery Weight	0.8 lb	0.6 lb	0.8 lb	1.5 lb
Weight (w/Battery)	6.2 lb	5.9 lb	8.5 lb	6.7 lb
Weight (w/Battery & AC Adapter)	6.9 lb	6.9 lb	10.4 lb	8.2 lb
Software Included				
In ROM	DOS 3.3	DOS 3.3, FastLynx LX	None	None
On Disk	DOS 3.3, PC-Kwik Power Pak	None	DOS 3.3	DOS 3.3
Options				
Additional Battery Pack	\$79	\$79	\$50	\$129
Carrying Case	\$99	\$59	\$99	\$89
Internal Modem (2400 bps)	\$349	\$199 for 1200 bps	N/A	\$449
Memory Upgrade	\$699 for 1MB, \$1,199 for 2MB	\$999 for 1MB	\$399 for 1MB	\$699 for 1MB, \$1,299 for 2MB
Warranty (months)	12	12	12	12
Telephone	(714) 583-3000	(312) 699-4800	(415) 490-4300	(713) 370-0670
Other Configurations	None	2MB RAM version for \$2,799	None	Model 40 (\$5,119) includes a 40MB hard-disk drive
Minireview	<p>The large, clear display and excellent keyboard make this an outstanding low-cost notebook computer. The AutoResume feature allows you to turn it off without closing files or exiting applications. Just touch a key and you're right where you left off. The built-in pop-up battery level display is a plus. The absence of a hard-disk drive may be a problem for some users, but the optional RAM disk can alleviate this. Toshiba also offers the T1000XE, essentially the same computer with a 20MB hard disk in place of the floppy drive.</p> <p>The proprietary 2-inch, 720K floppy-disk drive was a courageous experiment in weight saving. Unfortunately, no other computer uses 2-inch disks, and Zenith charges an outrageous price for them, so purchasers of the MinisPort pretty much have to buy the external 3.5-inch floppy-disk drive. Also, considering how long it's been in the laptop business, Zenith should have done a better job with the display. The MinisPort is attractive and sleek, but you may want to wait for an improved version.</p> <p>This fast, low-cost unit from Bondwell is a fine effort, but it's not without its problems. The pluses are the 40MB hard-disk drive, the built-in pop-up battery level (which should be a standard feature on all battery-powered laptops), and the price. On the minus side, the unit is heavy in comparison with other notebook models and the display is so-so at best. This is also the only unit reviewed here that doesn't have room for an internal modem.</p> <p>Introduced last November, this unit set a new standard for lightweight computers. For people who like to travel light, but need processing power and a hard-disk drive, there just isn't a better deal around than the LTE/286. Compaq did a great job fitting all the keys into such a small area. The unit slips easily into an overnight bag, and its 3.5-hour battery life is the longest in the industry. Easy to fall in love with, but the price tag may be hard to swallow.</p>			

BUYER'S GUIDE

Eight 80286-Based Laptop Computers:



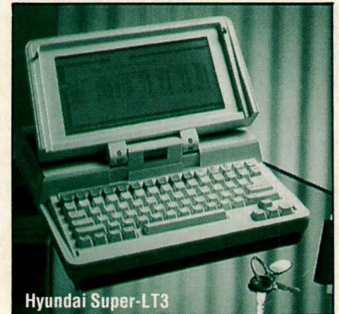
Compaq SLT/286 Model 20



Epson LT-286e



GRiDCase 1520



Hyundai Super-LT3

	Compaq SLT/286 Model 20	Epson LT-286e	GRiDCase 1520	Hyundai Super-LT3
Suggested Retail Price	\$5,519	\$4,599	\$4,670	\$2,495
Rating	★ ★ ★ ★	★ ★ ★	★ ★ ★	★ ★
Clock Speed/Wait States	12 MHz/One	12 MHz/One	10 MHz/One	10 MHz/One
Memory (Standard/Maximum)	640K/3.6MB	1MB/2MB	1MB/4MB	1MB/2MB
LCD Display				
Backlit	Yes	Yes	Yes	Yes
Screen Size (W by H)	5.9 by 7.8 in.	8.5 by 6.5 in.	8.75 by 6 in.	9.4 by 4.4 in.
Mode Support	VGA w/8 gray scale	EGA w/8 gray scale	VGA w/5 gray scale	CGA w/4 gray scale
Maximum Resolution	640 by 480 pixels	640 by 480 pixels	640 by 480 pixels	640 by 200 pixels
External Monitor Port	VGA	EGA	VGA	EGA
Storage				
Floppy-Disk Drive (Size/Capacity)	3.5-inch/1.44MB	3.5-inch/1.44MB	3.5-inch/1.44MB	3.5-inch/1.44MB
Hard-Disk Drive (Capacity/Speed)	20MB/29 ms	20MB/27 ms	20MB/28 ms	20MB/27 ms
Additional Ports				
Standard (Parallel/Serial)	P, S	P, S	P, S	P, S
Floppy-Disk Drive	\$275	\$499	\$395	No
Keyboard/Numeric Keypad	\$249, \$149	\$125, No	Yes (price not available), \$145	No, No
Expansion Box	\$999	No	No	No
Battery				
Claimed Battery Life	3 hr	3 hr	2 hr	2 hr
Charging Time	1.5 hr	8 hr	8 hr	10 hr
Size and Weight				
Overall Dimension (w/Battery)	13.5 by 8.5 by 4.2 in.	12.5 by 14 by 3.5 in.	11.5 by 15 by 2.3 in.	13.2 by 13 by 2.8 in.
Battery Weight	1.8 lb	4 lb, external	1.2 lb	1.5 lb
Weight (w/Battery)	14 lb	17 lb	13 lb	12.5 lb
Weight (w/Battery & AC Adapter)	15.8 lb	19.8 lb	14.6 lb	14.4 lb
Software Included	DOS 3.3	DOS 4.01, Turbo EMS	DOS 3.3	DOS 3.3
Options				
Additional Battery Pack	\$129	\$349	\$110	\$95
Carrying Case	\$89	\$99	\$60-195	\$95
Internal Modem (2400 bps)	\$599	\$299	\$595	Yes (price not available)
Memory Upgrade	\$699 for 1MB	\$499 for 1MB	\$595 for 2MB, \$2,395 for 4MB	Yes (price not available)
Warranty (months)	12	12	12	18
Telephone	(713) 370-0670	(213) 539-9140	(415) 656-4700	(408) 473-9200
Other Configurations	Model 40 (\$6,199) includes a 40MB hard-disk drive	40MB hard-disk drive version available for \$4,999	None	None

Minireview

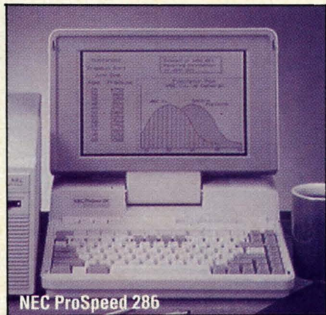
The SLT/286 was the first laptop to offer a VGA display; it was (and is) a winner. Weighing in at about 14 pounds (including battery, 3.5-inch 1.44MB floppy-disk drive, and 20 MB hard-disk drive), this lunch-box-size computer is at home on your lap or desktop. The replaceable battery pack will run the system for up to three hours. The 82-key keyboard is detachable for more comfortable desktop use. Although it's not up to Compaq's usual standards, the keyboard has a firm touch. Key layout will take some getting used to.

This computer is a real heavy-weight—17 pounds with its 4-pound battery pack—and is nearly as large as a briefcase. Its display and keyboard, however, are both very good. The LCD panel is detachable, which allows easy viewing of a desktop monitor. In addition, the LT-286e offers several unusual and noteworthy features: a removable hard-disk drive, a numeric keypad, and a slot for a two-thirds-length expansion card. A good bet for anyone who needs a 286 desktop computer that can travel on occasion—maybe without the heavy battery pack.

Not much bigger than a full-size atlas, the 1520 has a 10-MHz Intel 80C286 microprocessor. It's not the fastest 286 laptop, but, overall it is well designed. The computer's case is constructed from magnesium, which is light but more durable than plastic. The GRiD-Case sports a sharp display; a gas-plasma screen is optional. The keyboard (which lacks a separate numeric keypad) is tightly packed and has a small, hard-to-find Return key.

This is Hyundai's first effort in the laptop arena. The attractive price spells trade-off, and trade-offs there are. The unit's CGA display and 10-MHz speed are both sub-standard for a 286 today, but neither is a crippling deficit. The big problem is the keyboard, which has only 77 keys. To access the Home, End, PgUp, or PgDn keys, you must press Num Lock: a nightmare. For what it's worth, the keyboard's touch is good. If you need a 286 laptop and can deal with the keyboard's shortcomings, the price makes this a good choice.

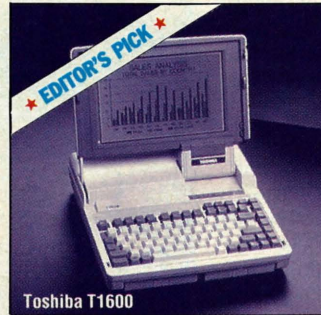
A Side-by Side Comparison



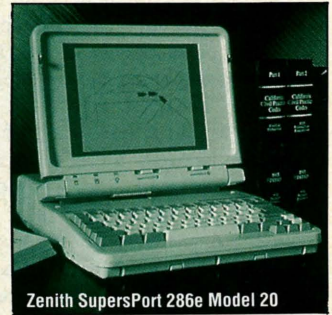
NEC ProSpeed 286



Sharp PC-5541



Toshiba T1600



Zenith SupersPort 286e Model 20

	NEC ProSpeed 286	Sharp PC-5541	Toshiba T1600	Zenith SupersPort 286e Model 20
Suggested Retail Price	\$4,899	\$4,895	\$4,499	\$4,999
Rating	★ ★ ★	★ ★ ★	★ ★ ★ ★	★ ★ ★
Clock Speed/Wait States	16MHz/One	12MHz/One	12MHz/One	12MHz/Zero
Memory (Standard/Maximum)	1MB/5MB	640K/3.6MB	1MB/5MB	1MB/3MB
LCD Display				
Backlit	Yes	Yes	Yes	Yes
Screen Size (W by H)	9 by 5.7 in.	7.75 by 5.75 in.	9 by 5.7 in.	8.25 by 6.25 in.
Mode Support	VGA w/16 gray scale	VGA w/16 gray scale	EGA w/16 gray scale	VGA w/16 gray scale
Maximum Resolution	640 by 480 pixels	640 by 480 pixels	640 by 400 pixels	640 by 480 pixels
External Monitor Port	VGA	VGA	EGA	VGA
Storage				
Floppy-Disk Drive (Size/Capacity)	3.5-inch/1.44MB	3.5-inch/1.44MB	3.5-inch/1.44MB	3.5-inch/1.44MB
Hard-Disk Drive (Capacity/Speed)	20MB/29 ms	40MB/25 ms	20MB/27 ms	20MB/28 ms
Additional Ports				
Standard (Parallel/Serial)	P, S	P, S	P, 2 S	P, S
Floppy-Disk Drive	Yes (price not available)	\$499	\$499	\$399
Keyboard/Numeric Keypad	Yes (price not available), No	Yes (price not available), No	No, \$99	\$129, \$129
Expansion Box	\$899	No	Yes (price not available)	\$599 for 3-slot expansion
Battery				
Claimed Battery Life	3 hr	2 hr	2 hr	4 hr
Charging Time	3.5 hr	4 hr	8 hr	8 to 10 hr
Size and Weight				
Overall Dimension (w/Battery)	12.9 by 14.9 by 3.5 in.	12.1 by 14.3 by 3.3 in.	12.5 by 12.2 by 3.3 in.	12.2 by 15.4 by 3.4 in.
Battery Weight	2 lb	1.1 lb	1 lb	4 lb, external
Overall (w/Battery)	16 lb	14 lb	11.6 lb	15.6 lb
Overall (w/Battery & AC Adapter)	17 lb	15.8 lb	13.9 lb	17.1 lb
Software Included	DOS 3.3	DOS 3.3	DOS 4.01, PC-Kwik Power Pak	DOS 3.3, Windows
Options				
Additional Battery Pack	\$199	\$128	\$69	\$289
Carrying Case	\$129	\$99	\$89	\$59
Internal Modem (2400 bps)	\$399	\$499	\$299	\$499
Memory Upgrade	\$799 for 1MB, \$2,499 for 4MB	\$845 for 1MB, \$1,495 for 2MB	\$1,099 for 2MB	\$699 for 1MB, \$1,199 for 2MB
Warranty (months)	12	12	12	12
Telephone	(708) 860-9500	(201) 529-8200	(714) 583-3000	(312) 699-4800
Other Configurations	None	None	Model 40 (\$4,999) includes a 40MB hard-disk drive	Model 40 (\$5,499) includes a 40MB hard-disk drive

Minireview

This is the fastest battery-powered 286 laptop money can buy today, and its speed is complemented by a very good display and keyboard. The keyboard is spacious and generally well laid out. The placement of the Ins and Del keys, right next to the space bar, is unorthodox but not disastrous. Unfortunately, the ProSpeed 286 is large and heavy. This is no problem if you're traveling by car, but few will choose to carry it on long trips. Unlike the Epson and the Zenith, this laptop is large with or without the (2-pound) battery pack.

This is another large unit—as big as the NEC, but a few pounds lighter. Both the display and keyboard are very good. Price is on the high side. Replacing the battery pack on this unit requires a screwdriver, an annoying, though not insurmountable, drawback—definitely out of date for a modern laptop. Another (surprising) annoyance is the laptop's noisy cooling fan, which operates intermittently. If you don't mind packing a screwdriver (or can make do with one battery pack), this should be a good laptop to travel with.

Toshiba's 11.6-pound T1600 is a well-thought-out 286 that set a new standard for laptops when it was released in 1989. The keyboard action is responsive. The sharp blue-and-white screen is readable, even in direct sunlight, and is removable, so users can conveniently hook up a monitor. The T1600 can hold two battery packs; each lasts about two hours. AutoResume allows users to suspend work and put the computer to sleep without closing files.

This laptop is paired with an external 4-pound battery pack about the size of a quart of milk. This behemoth delivers longer life than the average battery pack, but makes a weighty and cumbersome package. The sharp display can be folded out when you want to use a desktop monitor. The keyboard's layout and touch are good, and its blue keys are easy to see in low light. As with many other 286 laptops, the battery pack, ironically, seems to make the unit too heavy for portability. Running on AC power, the SupersPort 286e is quite compact.

dream can easily turn into a 20-pound nightmare.

Your means of transportation, of course, can play a key role in determining the appropriate weight for your portable. If you're carrying other luggage on long trips, look for the lightest notebook computer that will do the job. If you're driving to your client's office, weight is less of a problem. Either a full-size laptop or an AC-powered transportable should work fine. The additional processing power, better display quality, and larger storage may be important here.

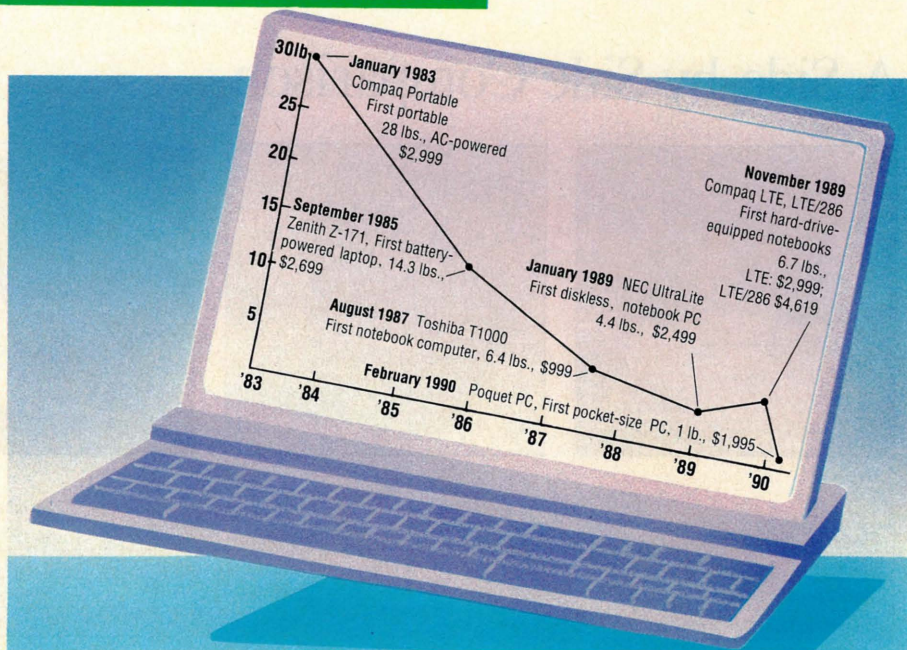
Battery. Manufacturers of portable computers face a basic trade-off around the issue of power: Longer battery life means bigger, heavier batteries. One way to change this equation is to make battery packs removable as well as rechargeable, which is what most manufacturers have done. If you need more life than one pack holds (more than two hours is considered good these days), take two. In fact, it's a good idea to have a spare battery pack even if working time isn't a major consideration. Here's why: Rechargeable nickel-cadmium (NiCad) batteries live longer if they are drained fully before recharging. With the two-battery system, you can run one all the way down and then replace it with the fully charged spare.

Storage. Portable computers have standardized on 3.5-inch floppy-disk drives. (There are a few mavericks, like the Zenith MinisPort with its 2-inch disks.) Older models tend to be equipped with a single 720K drive. This can present problems for some software applications. Many newer models provide 1.44MB drives, which alleviate this difficulty.

A hard-disk drive is nice to have—and essential for certain applications—but few notebook computers are equipped with one. They are expensive, and there's a major practical trade-off: Hard drives gobble power. A portable with a hard drive will run only about two-thirds as long as the same computer without the hard drive. Access-speed numbers for portables can be misleading because, in many models, the hard drive shuts off after a period of inactivity to save power.

Display. Two types of display are found on portable computers: LCD and gas plasma. LCDs are cheaper and lighter and consume considerably less power than gas-plasma displays, which is why they are used on most models. Gas-plasma screens, however, have the edge in clarity. New, low-power gas-plasma screens have been introduced recently; they hold great promise for the future.

Size. Instead of a diagonal measurement, we list the height and width of each display. Based on our tests, displays 7.5 by 4.5 inches or larger should give good results. However, the ratio of width to height should be less than two to one. Otherwise text tends to look squashed, and circles look like ellipses.



A Brief History of IBM-Compatible Portable Computers

Backlighting. This feature improves the readability of LCDs in dim lighting, but there is a major trade-off: It cuts battery life by about half. The recently released Toshiba T1200XE uses a new approach called sidelighting, which produces a slightly sharper display and consumes less power.

Mode Support, Intensity Levels, and Resolution. VGA is becoming the standard in portables with 80286 or faster microprocessors. Because of cost and size constraints, CGA is still the standard in notebook computers. One recently released notebook model—Toshiba's T1000SE—uses the "double-scan" CGA mode (also known as AT&T 6300) for improved display quality. It gives 640-by-400 pixel resolution, which is higher than EGA. Most up-to-date LCDs can display four levels of intensity, although not very effectively. Some sophisticated LCDs and gas-plasma displays can display eight levels, necessary if you plan to work with graphics.

Keyboard. Computer keyboards, like piano keyboards, must fit the human hand. When you try to squeeze the 101 keys of a full-size enhanced keyboard into two-thirds the space, something's gotta give. And the smaller the computer, the bigger the problem. Solutions include assigning multiple functions to some keys (the most common), sticking nonalphanumeric keys in odd locations, and reducing the size of keys such as Del, Ins, Caps Lock, and Ctrl. Any or all of these can be very distracting. Sit down and spend a substantial amount of time working with the keyboard of any laptop you are interested in buying. If it drives you crazy, it doesn't matter how great the rest of the machine is. Touch has improved on laptop keyboards of late.

Additional Ports. Most laptops have stan-

dard parallel and serial ports. Many have a port for an external floppy-disk drive. Some have auxiliary ports for connecting an external keyboard, numeric keypad, or monitor. These allow users to turn a portable into something like a desktop computer.

Microprocessor. Most of the computers reviewed below are based on Intel 80C88 or 80C86 microprocessors (or their equivalents), running at either 4.77 or 9.54 MHz. Some are based on the Intel 80C286 microprocessor, running at 12.5 MHz. The higher the microprocessor's clock speed the faster the computer operates. Wait states work the other way; lower numbers mean faster operation.

Options. As discussed above, an additional battery pack is a wise investment. And consider a carrying case; the handles built into most portables aren't very strong. A case also affords some protection against bumps and other minor accidents.

If you need a modem, an internal modem from the portable's manufacturer is your best bet. True, it draws power from the laptop and shortens battery life, but it means one less unit, cable, and battery to keep track of. Making sure the modem is completely shut off when not in use (via switch or setup software) will minimize the power problem.

Cost. Many factors will enter into a decision about the purchase of a portable computer. Each user has his or her own priorities. For business use, however, cost—believe it or not—should be down toward the bottom of the list (as it is here). Equipment purchased for your business is usually tax deductible; thus, the true cost is often lower than it looks on the surface. If your tax rate is 40 percent, a \$5,000 purchase ultimately costs you only \$3,000. ■

Survive System Breakdowns

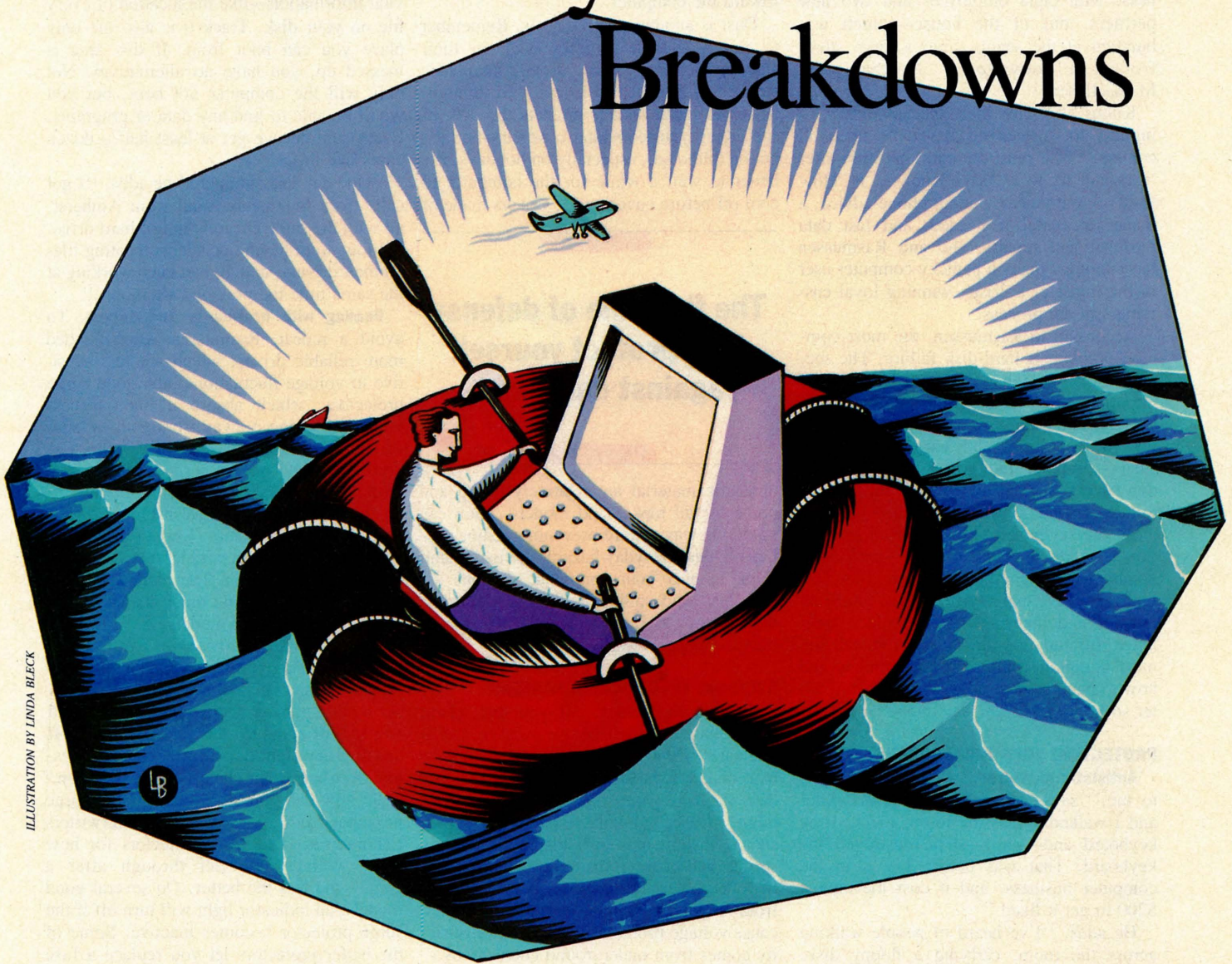


ILLUSTRATION BY LINDA BLECK

How to Protect the Most Valuable and Vulnerable Parts of Your Computer—the Hard Drive and Floppy Disks—Without Losing Time, Data, or Your Sanity

BY LISA KLEINHOLZ

I live by my computer. I can't afford to be without it for a single working day. So last summer, when my monitor went haywire, I was fit to be tied. As usual, I had more work than I could handle, with two deadlines to meet, one of which was only three days off.

When I finally reached the manufactur-

er's technical-support staff, I got good news and bad. The good news was that the monitor still had a week to go on the one-year warranty, so it could be fixed for free. The bad news was that I had to cart the thing 60 miles to West Hartford and then wait three to four weeks for a replacement.

In a panic I called a local, home-based computer business that had helped me out in a pinch once before. The cheerful voice of Barbara Kuhns answered the phone. What did I need? A VGA or multisync monitor to

rent for a few weeks?

"Let me make a few calls," said Kuhns. "I think I can get one for you."

And she did, that afternoon. I was able to finish my work with a minimum of interruption.

THE MOST COMMON PROBLEMS

Service builds business. It was all in a day's work for Kuhns and her husband Warren Rasmussen, whose computer sales, repair, and consulting firm, Golden Jet Sys-

LISA KLEINHOLZ wrote "Which Is the Best Financial Software for You?" in the October 1989 issue.

tems, has grown tenfold from the tiny home-based business they started only three years ago. This fall they moved the business, with eight employees and two new partners, out of the house—which was bursting at the seams—into a large storefront in downtown Northampton, Massachusetts.

Kuhns attributes their success to a willingness to answer distress calls from all comers. “The most common question after ‘Can you fix it?’ ” says Kuhns, “is ‘How fast?’ ” With clear, patient phone advice, a loaner or rental if needed, and fast data retrieval and repairs, she and Rasmussen have soothed many a panicky computer user in the midst of a crisis, winning loyal customers in the process.

According to Rasmussen, the most common problem is hard-disk failure. The second most common is accidental erasure of important files. Other typical problems involve user difficulties with software, leading to lost files, and various hardware snags—printers, monitors, and cards that don’t work because of either a mechanical failure or some kind of incompatibility.

As the saying goes, an ounce of prevention is worth a pound of cure—and that’s notably true for computer systems. Based on their extensive experience, Kuhns and Rasmussen and their new partner, Jack Begleiter, offered tips on how to forestall the most common computing catastrophes and how to navigate a soft landing should disaster strike.

PROTECTING YOUR ENVIRONMENT

Antistatic measures. “I’ve had it happen to me,” says Rasmussen. “It was winter and I walked across the room, touched my keyboard and—Zap!—static destroyed the keyboard. That was before I was in the computer business, and it cost me almost \$200 to get it fixed.”

He adds, “I’ve heard of people walking across the room, carrying a floppy disk. They’ll suddenly feel a zap in their fingers. End of disk.” The same static shock can kill data on hard drives, too.

If your winter environment is dry, you can avoid buildup of static electricity by keeping a humidifier in the room. “Not aimed at the computer!” cautions Begleiter. You can also buy antistatic pads, covers, and rugs from computer-supply stores and mail-order houses, or use Rasmussen’s home remedy: Add a capful of fabric softener to a gallon of water and spray it on the rug or floor (not on the computer) to reduce static.

Reducing physical hazards. Cigarette smoke is no better for a computer than it is for people. Rasmussen tells of a customer whose floppy drives kept breaking down and having to be cleaned. When he visited the customer’s office, he could easily see why. The guy smoked cigars and, while

working, would blow smoke directly at his disk drives. “If you must smoke,” jokes Rasmussen, “blow your smoke away, not toward the computer.”

Dust is another disk nemesis. Remember to put 5.25-inch floppies back in their sleeves after use; you can discard the plastic sleeve that 3.5-inch disks come in, though, since the metal shutter protects the disk itself. Keep your computer covered when it’s not on (although, especially on hot days, it’s better to wait a while for the computer to cool off before covering it). Covers made of

The first line of defense is to protect yourself against data loss.

antistatic material are relatively cheap and come for all makes and models. They can go a long way toward preventing major mishaps. Other everyday hazards are eating and drinking near your computer. Crumbs are like dust, and spills can destroy electronic devices such as keyboards and CPUs, not to mention floppy disks.

AVOIDING ELECTRICAL DISASTERS

Voltage vicissitudes. “If you live where line voltage is often below average and it fluctuates while you are writing data to your hard disk,” says Rasmussen, “you can lose data or have your files corrupted.” You might suspect line-voltage problems, for instance, if your monitor’s display repeatedly shrinks and then returns to normal size. And if your power line comes into your house from a pole, lightning is more likely to cause voltage problems than if your electricity comes from underground connections.

To check for line-voltage problems, you can buy a volt-ohm meter for about \$20. You simply set the meter for AC and plug it into the outlet where your computer ordinarily goes. A normal reading is 110 to 120 volts, but the current can range from below 90 to over 140 volts. Voltage can vary during the day, so take several readings.

Line-voltage fluctuations are especially common during the hot summer months, when utility companies are hard-pressed to supply electricity. You can have brownouts (low voltage) during the day and then get sudden surges (high voltage) at the end of the business day, when usage suddenly drops. Particularly short, highly intense surges—above 600 volts—are called spikes.

“Surges,” Rasmussen explains, “are probably the biggest killers of computers and hard disks.

“Typically a surge fries the hard disk’s

system track. Track 0 holds the file allocation table [FAT; see “Terms to Know” for many technical definitions], which contains vital information—like the location of every file on your disk. Track 0 is also the only place you can boot from. If this area is messed up, you have no alternatives. Not only will the computer not boot, but you won’t be able to find any data or programs. Every summer we get at least half a dozen cases like this.

“One day last summer,” he adds, “I got calls from four people—all from Amherst, all with the same cheap brand of hard drive. All four were having problems locating files on their drives—and all had been working at the same time the previous afternoon.”

Dealing with brownouts and surges. To avoid a repeat, Rasmussen recommended more reliable drives, which are less sensitive to voltage fluctuations, and good surge protectors, which absorb a line’s excess voltage, keeping it away from your system, and shut you down in case of a spike. Everybody should have a surge protector, but research brand and model before buying.

“I used to think there wasn’t much difference in surge protectors,” says Rasmussen, “but then I read an article that described testing different types. The more expensive ones tended to provide much better protection than the cheaper models.

“Before I realized there was a difference, I sold a \$25 surge protector. One night I was programming. There was some distant thunder. I had a good protector plugged into a \$25 one. All of a sudden the good one went off and shut me right down, protecting my system from harm. The cheap one went right on.”

So how can you tell a high-quality surge protector from a useless one? Underwriters Laboratories (UL) tests protectors for how much voltage they let through after a surge—the less the better. On several good models, an indicator light will turn off if the surge protector becomes inactive. Some of the better protectors let you replace a fuse that burns out when the device absorbs a surge. And it’s worth looking for surge-protector manufacturers, such as Panamax, that offer a lifetime warranty: If the protector fails, the company will pay to repair or replace any damaged hardware.

You can also help prevent surges from reaching your computer by never plugging your system into a line that has a motor on it (such as a refrigerator). And don’t overload your electrical circuit with too many items on the same line.

If your home has bad wiring or is located in an area with a lot of fluctuations in voltage, you might want to invest in a line conditioner, which maintains a constant voltage, or in an uninterruptible power supply (UPS), which will switch you over to battery power if your electricity is cut off for any reason. Your local dealer and computer-supply catalogs are two sources of

these items.

"I have one customer who kept having problems with his hard drive," says Rasmussen. "He lives in a really old house, and he and his wife run two businesses out of their home. I recommended a UPS. It was expensive and he wasn't sure, so I said, take one for a couple of weeks to see how you like it. He finally decided to keep it. One day, while I was over there, his wife plugged in the vacuum cleaner and all of a sudden all the lights went off all over the house. The only things working in the whole place were his computer and the desk lamp [plugged into the UPS]. He said: 'You planned this!'"

MAINTAINING HARD-DISK DRIVES

Park your hard disk. A hard-disk drive's heads read data from and write data to the disk. To quote the *Mace Utilities* utility software manual: "When the heads do come down [on your hard disk], it is the microscopic equivalent of a 60 mile per hour crash."

What makes the read/write heads "come down"? Bumping into your computer, for example, or getting dirt inside the mechanism. In addition, every time you turn off power to your computer, the drive stops spinning and the heads come down on the disk surface.

When you park the disk (using a utility program), the heads are moved so that this collision takes place on an area where no data is stored. If you don't park, the crash occurs right on the area of the disk where you are working. Thus, the spot you use most will be most vulnerable to damage.

Some hard-disk drives park their heads

automatically (called self-parking); if they do, the documentation should say so, and parking your disk needn't concern you. If your drive doesn't self-park, get a park program from your dealer or use the one included in most DOS utility packages (see box, "Software for Soft Landings").

Diagnosing and healing a sick disk. Hard-disk maintenance utilities can check your hard disk for surface defects, move files and clusters of information to safe areas of the disk, and shut out unhealthy ones. Informed users maintain their drives about once a month.

SpinRite II, for example, can perform low-level formats, which detect and fix minor damage to your hard disk and data as well. The utility also adjusts your system's interleaving, making for a faster hard-disk drive. For people with systems that will work with *SpinRite II* (it's not compatible with a Plus Development Hardcard, for example), it is an invaluable tool, really worth getting. Call the publisher to find out if your system is compatible.

Several packages contain *defragmenting* programs, which can place fragments of files together to optimize disk-access time. Be careful *not* to defragment if you are getting error messages or experiencing other difficulties with your hard drive. In order to save everything that hasn't yet been damaged, run some kind of a backup—whether with a utility or using MS-DOS or the Mac Finder—before doing anything else.

THE TROUBLE WITH SOFTWARE

Preventing operator errors. Computers are technical animals, and human beings are not—unless they are trained. I once pressed

three wrong keys and lost two days' work.

"It's very common," says Rasmussen, "for people to do things like turn off the computer without saving their data or delete all their files."

Though it seems too elementary to say, take the time to educate yourself. Read software manuals. The technical-support people I talked with all emphasized this point. Manuals may be short on drama, but if you want to avoid some melodramatic moments in your computing life, it's best you take an hour or so to go over the manual before starting to use a new program.

If you are getting weird messages on your screen, or things just don't look right when you're working with a program, first try the manual. It's amazing how often the answer is right there. Second, try the software or hardware technical-support line.

How to talk to technical support. Even when you know whom to call, do you know what to say?

Dwayne Melancon, director of technical support for Fifth Generation Systems, publisher of several utilities for both MS-DOS and Macintosh systems, suggests you do the following when talking to any technical-support department:

Before you pick up the phone

1. Note the make and model of your computer, drive, controller, special boards, and any peripherals relevant to your problem.

2. Jot down the exact wording of any error message you are getting on-screen.

3. Be able to describe precisely what you were doing right before the problem occurred.

4. Have the manual on hand, along with software version and serial number.

5. Have the computer turned on and the phone near the computer if possible.

Before you hang up

1. Get the full name of the technical-support person with whom you are speaking.

2. Ask for a phone number and proper procedure for contacting that person if you need more help later.

DOS headaches. When I asked which software people have the most trouble with, Rasmussen and his partner Begleiter looked at each other and grinned. "DOS," they both said at once.

PC-DOS, or MS-DOS, the operating system that runs most IBM and compatible computers, was not written to be easy for ordinary people to use. In this regard, Macintosh users have an edge. Still, common errors with either system include accidentally deleting important files and formatting hard or floppy disks that contain vital data.

"Accidents do happen," says Rasmussen. "A long time ago, when I was working for somebody else, I got a call from a secretary who worked for a doctor. She was looking through the computer files in her

TERMS TO KNOW

Error messages: Messages you get on-screen when your system can't find files or perform operations you request. Typical MS-DOS errors include the anxiety-provoking "Invalid Drive Specification" or "General Failure Error Reading Drive C." Or the Macintosh system might suddenly inform you that a disk you thought was good is now "unreadable." If you get error messages, whether from the computer's operating system or your application programs, write them down exactly. Technical support will ask you for this information.

File allocation table or FAT: Tells MS-DOS system where on the disk a file can be found. The Finder's invisible Desktop file keeps similar track of files on a Mac.

Fragmented files: A file is kept in clusters (groups of sectors). For a file that has been added to periodically, clusters can be far apart in different locations on a hard disk. Some utilities gather together all clusters for each file, which can optimize disk speed. However, don't defragment an ailing disk.

Low-level format: Special system of recovering slightly damaged areas on a hard disk (MS-DOS only) and improving system performance. Always back up hard disk before

attempting. Not possible on all systems. *SpinRite* is best and easiest, but *Norton* has a way for technically advanced users to do so as well.

Root directory: Contains system files vital to booting and finding directories, drives, and programs on your system (MS-DOS only). Some programs create copies of this area, which can help you restore a system if it is damaged.

Sectors and tracks: Most MS-DOS hard disks have 17 sectors per track (concentric rings on the disk). Some have 26 sectors. Each sector holds 512 characters, or bytes, of information. Anything involving "editing at the sector level" is best left to experts.

Static electricity: Electrical charges that build up in dry conditions, especially when you walk across carpet, rub fur or rubber, and so on. Infamous killer of electronic equipment, including CPUs, keyboards, and floppy disks.

Undeleting files: When an MS-DOS file is deleted, all that happens is that the first letter of the file name is changed. On the Mac, a small change is made to the Desktop file. If you don't write over the area of your disk where the file itself was, though, it is relatively easy to recover the file with undelete utilities.

SOFTWARE FOR SOFT LANDINGS

The dreaded phrase "my system crashed" is a common colloquial reference to several types of computer problems. However, your system really does crash if the read/write head on your hard-disk drive even touches the disk during operation (the head is designed to float on a cushion of air above the rapidly spinning disk). That kind of crash landing can cost you both an expensive piece of hardware and invaluable data stored on your disk.

Your system's vulnerability is good reason that a hard-disk utility is essential software for most people. Buying one of the programs listed here won't soften the blow for novices, though, since you need to feel comfortable first with MS-DOS, or the Mac System, in order to use a utility program without damaging your files further. But even if you're only moderately experienced, a utility offers accessible protection. And if you call yourself an expert, then you might need a second utility that offers features your current program lacks.

Some utility software does more than prevent and cure hard-disk woes and restore files if they go. One package might include menu-driven DOS commands (*PC Tools*), another a DOS batch-file editor and text-file searches (*Norton*), while two others partition a hard disk into multiple volumes and encrypt files from

prying eyes (*SUM II* and *SilverLining*). Consider these "extra" features carefully when buying a utility program.

The chart below details availability of the key features you'll need to maintain and protect your hard-disk drive. Before going out to buy new software, though, you might want to check the utility software that came with your hard-disk drive. Some of the better drives include one of our listed programs, while others offer utility programs with many of the same features.

Backup. In addition to programs dedicated to backing up hard-disk drives, some general hard-disk utilities also have programs that automate the process.

Undelete Files. Should you accidentally delete a file, immediate use of a utility with this feature can help you recover the data.

Diagnostic. Several features help you diagnose a hard-disk drive, including testing the disk's sectors and the disk-controller card.

Disk Repairs. Automatically transfers any data stored on bad sectors to good sectors. Also lets you "lock out" bad sectors so that your drive no longer uses them.

Interleave. Your computer's optimum sector interleave—the pattern of data storage on your hard disk—is determined by several factors,

most notably, which CPU you have. Some utilities can optimize a drive's interleave to its system (although your drive's installation program may have done this already).

Defragment. Two levels of defragmentation: joining individual files and optimizing the entire hard-disk drive. Two benefits: Your drive will seem to run faster (especially noticeable when opening and closing documents), and you may regain some lost space on the disk.

Safe Format. Some programs provide a substitute for DOS's format command for both hard disks and floppies. With either alternative, an accidental format is relatively easy to undo—provided you use the utility to recover before writing any new data to the disk (thereby covering up old data).

System Save. By periodically saving information about your entire hard-disk directory—such as its FAT—into a separate file, the listed programs make it easier to restore your drive after a crash.

Park Heads. As detailed in the main text, parking a hard-disk drive's read/write heads (if your drive does not self-park automatically) before you shut down your computer helps prevent the heads from destroying data when they crash on the disk.

—DAVID HALLERMAN

Utility Software Features

	Backup	Undelete Files	Diagnostic	Disk Repairs	Interleave	Defragment	Safe Format	System Save	Park Heads
<i>MS-DOS</i>									
Disk Technician Advanced	N	N	Y	Y	Y	N	N	Y	Y
Mace Utilities	N	Y	Y*	Y	N	Y	Y	Y	Y
Norton Advanced Utilities	N	Y	Y*	Y	N	Y	Y	Y	N
PC Tools Deluxe	Y	Y	Y*	Y	N	Y	Y	Y	Y
SpinRite II	N	N	Y	Y	Y	N	N	N	Y
<i>Macintosh</i>									
Disk Express	N	N	Y	N	N	Y	N/A	N	N
SilverLining	N	N	Y	N	Y	Y	N/A	N	Y
SUM II	Y	Y	Y	Y	N	Y	N/A	Y	N

*Does not test disk controller. N/A Not applicable.

MS-DOS

Disk Technician Advanced v6.0 (\$150). Prime Solutions, Inc., (619) 274-5000. Requires 512K; DOS 2.1 or higher.

Mace Utilities v1990 (\$149). Fifth Generation Systems, (504) 291-7221. Requires 256K; DOS 2.0 or higher.

The Norton Utilities, Advanced Edition v4.5

(\$150). Peter Norton Computing, (213) 319-2000. Requires 192K; DOS 2.0 or higher.

PC-Tools Deluxe v6.0 (\$129). Central Point Software, (503) 690-8090. Requires 320K; DOS 3.2 or higher.

SpinRite II v1.0 (\$89). Gibson Research Corp., (714) 830-2200. Requires 384K; DOS 2.1 or higher.

Macintosh

DiskExpress II v2.04 (\$90). ALSoft, (713) 353-4090. Requires 1MB.

SilverLining v5.21 (\$70). LaCie, (503) 684-0143. Requires 1MB.

SUM II v2.0 (\$100). Symantec Corp., (408) 253-9600. Requires 512Ke.

spare time, trying to learn the system. She came to a program called Format and ran it just to see what it did." In that case, she managed to wipe out all the doctor's records. Because it happened before many of the lifesaving utility programs existed, those records were gone for good.

Retrieving lost data. How can you arm yourself against the dangers of DOS? If you

have employees who are not computer-savvy, consider having a menu system installed. Often called DOS shells, there are seemingly countless menu systems on the market. Of the hard-disk utilities, *PC Tools Deluxe* includes a fine shell program that will format floppy disks, copy and move files, and create and manage subdirectories more easily and safely than DOS.

To protect against accidental formats, you can replace your unprotected DOS format feature with a nondestructive formatter, such as *Mace's* special "safe" format program. Safe-format programs only make minor changes in the system files, leaving all other data intact so a disk can be easily unformatted and data retrieved. *Mace* recommends keeping only its floppy-disk for-

mat program on your hard disk, but the company also includes another program that will safely format a hard disk.

For added protection, you can use a utility that runs every time you turn on and turn off your computer, such as *PC Tools'* Mirror module or *SUM II's* Shield. Mirror copies vital information from your root directory, such as the FAT, onto a backup file, so if you damage files, the entire disk can be more easily restored. Utilities that save system information offer extra ways to rebuild a hard disk if these root-directory backups have been running.

KEEP YOURSELF COVERED

Of course, no matter how careful you are, or how good your hardware is, people make mistakes and machinery eventually wears out. The first line of defense is to protect yourself against data loss.

Make original program disks safe. Be sure to make working copies of all your programs—no exceptions. Keep the originals in a safe place in case you have problems with the working copy. Never use the original disks as working copies if you can avoid it.

Back up your data frequently. Rasmussen suggests a rule of three if you're working with vital information like financial records, important databases, legal briefs, or a Ph.D. thesis (yes, one of his customers lost a thesis, although Rasmussen was able to retrieve 70 percent of it from a damaged floppy).

Use three different backup disks. Save your first day's work on disk 1, your second day's work on disk 2, and your third day's work on disk 3. Then go back to disk 1 on the fourth day. Chances are, if your data gets scrambled, you'll discover it within

The most common problem is hard-disk failure. The second most common is accidental erasure of files.

three working days. You may lose some time, but you won't ever lose more than two days' worth of information.

One of my friends rarely saves data files on his hard disk. Instead, he keeps mainly programs on his hard disk, saves data on floppies, and makes a daily copy of his active floppy. That's a good method, but the rule of three disks would work for him, too.

Software to help you do backups. You can back up any file that will fit just by copying it onto a floppy disk. If you have a problem, all you have to do is find the disk with your extra copy of the file and copy it back onto a

functioning hard disk. Just be certain to write-protect the backup disk before using it. This is the simplest method of backup.

DOS also provides a backup command. Using Backup, you can back up files or directories too big for one floppy onto any number of floppies. To retrieve your data from this type of backup, you must use the Restore command and insert the backup

Establish a relationship with a computer dealer or consultant before you run into trouble.

disks in the order in which they were made, so clearly label your backup disks. An entire hard disk may be backed up this way.

Rasmussen recommends against using the standard DOS Backup and Restore. Different versions of DOS are incompatible with each other, which may make it impossible to restore your files if you change machines. Also the DOS backup function works in a daisy-chain fashion. If you have done a backup of several directories that take up 20 disks, and disk 13 is faulty, you may not be able to restore any data from disk 14 on.

That's why there's an active market for backup programs that are faster, more flexible, and more reliable than either DOS or the backup utility that comes with the Macintosh. The best utilities let you selectively back up and restore data by file name, date, or wildcard (for instance, all files with the extension .TXT). Some of the listed hard-disk utility packages, such as *PC Tools* and *SUM II*, also contain backup modules (although they're not as powerful as dedicated backup software).

CURING THE COMMON CRASH

Salvaging lost files. Sometimes the worst happens, and it's usually when you're unprepared—that is, caught without a backup. When the stuff on the screen makes no sense, or if you get a message like "General failure error reading drive C," or anything else that makes your blood run cold, do nothing.

"Stop right there," admonishes Rasmussen. "Don't do anything else. Call someone. Ninety percent of data loss occurs as a result of people trying to fix the problem when they don't know what they're doing. If you save after an accidental delete, that's when you write over your data and make it impossible to recover."

You can call on a local expert like Rasmussen, or if you are technically inclined (or just especially brave), you can try using

one of the popular utilities that can rescue lost data. These programs contain *unformat* and *undelete* functions. They work best if you have been using them all along—because of their preventive "safe" format and root-directory backup features—but even without that precaution, you can still salvage deleted files and sometimes restore data from damaged disks.

Some utilities, such as *Mace* and *Norton Advanced Utilities*, also provide expert tools to recover data sector by sector. Recovering files that have been badly damaged or scattered all over a disk is not a job for computer novices. With *Norton*, which Rasmussen uses for data recovery, you can go in and search for key data, write it to a new file, and piece a lost file together bit by bit.

"Just remember," says Rasmussen, "you can really screw things up working directly at the sector level. You can go into a program or a data file and accidentally change one piece of information and never be able to get into that file again."

One last resort: If you find yourself in a desperate situation and no local technician can solve your problem, you can try a company such as Mace Data Recovery, in Ashland, Oregon ([503] 488-2322, [800] 523-0258). The company charges \$200 to diagnose a hard disk, \$100 for floppies. For this fee, you will be told what the problem is, your chances for data recovery, and how much it will cost to restore data—average price for a hard disk is \$500.

Local dealers. How do you find your own Kuhns and Rasmussen? Even before you need help, ask other people whom they use for computer advice and rentals. Seek out local dealers who are willing to take the time to explain how to use equipment, rent or lend you replacements when you need repairs, retrieve data from badly damaged disks, and answer questions. If you're buying equipment, check out the competition—for service as well as price. Be sure to ask about the warranty period, whether they test equipment before they sell it to you (most mail-order houses, in Rasmussen's words, "just move boxes"), and whether they or the manufacturer will make repairs if things go wrong. If someone is giving you an 18-month warranty with on-site service, it's likely that the equipment is going to stand up. Establishing a relationship before you run into trouble can save you a tremendous amount of time, money, and anguish if you have problems down the line. ■

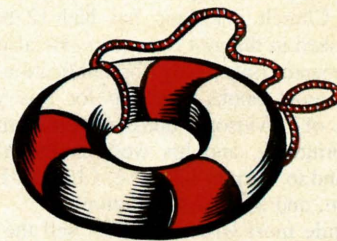


ILLUSTRATION BY LINDA BLECK

How to Publish Your First Book

*Add Credibility and Cash to Your Business
By Putting Your Expertise
Into Print*

BY PETER G. MILLER

Authors are always in the public eye; having a book published establishes many people as authorities in their fields. Book writing today is easier than ever, now that word-processing, spelling, and grammar programs speed the process and help would-be writers produce polished prose.

The Bureau of Labor Statistics tells us that of the 117 million people employed in the United States, only 82,000 earn a living as book authors. The chances of launching a successful full-time writing career—one in which the author gets to eat on a daily basis—are remote. More likely, and more appropriate for most home-based entrepreneurs, is writing books to create additional income and promote other business activities. After all, what better way to boost business than to give someone a copy of your book? But how do you penetrate the world of publishing and get your brilliant book idea accepted?

Today many authors are combining a home office, computer technology, and an astute business sense to profit from words, insight, and advice. Jeffrey Davidson, a home-based management consultant from Falls Church, Virginia, has had 12 books published in the past four years. He also has two manuscripts ready for publication and three more books lined up for this year. Some of Davidson's books have had multiple printings, and his work is in enough demand to warrant Japanese, Chinese, Indonesian, and Spanish translations.

While most writers will not sell the mil-



lions of books that Tom Clancy or Philip Roth do, the quest for knowledge, information, and entertainment is so great that even a moderately successful book can represent a significant income. So write down everything you know about dog breeding or child care and read on to learn how you can become a published author.

OVERCOMING THE MANUSCRIPT GLUT

Large publishers receive thousands of drafts each year, most unsolicited and virtually all doomed to remain unpublished. De-

PETER G. MILLER, a home-based journalist and broker from Silver Spring, Maryland, has had five books published by Harper & Row. His most recent book, *Buy Your First Home Now*, was released in March.

spite the labor and time involved, publishers typically read manuscripts with care because buried within the day's mail may be work from the next Stephen King. The question for writers is, "How do I stand out from the manuscript glut and reach the one editor who will buy my book?"

"With my very first book," says Davidson, "I called a publisher. Then I used letters, and now I'm going back to calling."

"The typical publisher receives at least 5,000 proposals a year, 100 a week, 20 a day. Even if there are five senior editors, the typical editor gets four proposals a day that he or she didn't ask for—perhaps 120 pages a day on top of all the other manuscripts in progress. You can imagine the mail piling up by the foot. Are you going to send the editor another letter to add to this pile? Yes, but only after you've made verbal contact first."

Davidson, author of such guides as *The Achievement Challenge* and *Marketing on a Shoestring*, says he sets aside time to "call 12 publishers on a single day. If the editor is not there, I pitch my idea to the assistant." In cases where editors are interested, Davidson sends a letter, outline, and sample chapter.

Kenneth W. Edwards, a home-based author from Corvallis, Oregon, used a more conventional approach. Edwards, a retired Air Force colonel, contacted more than 50 publishers to produce a book about real estate as a career.

When Edwards found that his marketing letter and sample chapters generated no in-

terest, he began to write articles for magazines and journals. He also conducted a national survey that asked, among other questions, whether respondents would be interested in a book on real estate as a career. Many said yes.

Now a published writer, Edwards tried again. He sent his marketing package—a cover letter plus sample chapters, articles, and survey results—to 20 publishers. In response, three publishers made solid contract offers. Today his book, *Your Successful Real Estate Career*, is in its fourth printing with AMACOM, a division of the American Management Association.

AGENTS CAN HELP

Many authors, including experienced writers, seek professional help when they need a publisher. "You need an agent," says Paul Dickson, a home-based author from Garrett Park, Maryland, who has written 24 books. "Otherwise, it's like giving yourself a haircut."

Agents constantly review book proposals so they effectively reduce the number of manuscripts sent to publishers. Seen another way, a publisher expects an agent to send only publishable work, otherwise the agent's letters and calls are likely to be ignored. Sending publishable material does not ensure acceptance by publishers, but it does at least get authors in the door, access first-time authors cannot ignore.

In return for their services, agents typically receive a commission equal to 10 to 15 percent of the author's advances and royalties. Agents may also charge fees to read manuscripts or to critique drafts, especially when dealing with first-time authors.

In the usual scenario, authors normally hunt for agents, but if a would-be writer is sufficiently well known, agents will make the first call. That's what happened to Manhattan author Betsy Ashton, formerly a reporter for the "CBS Morning News" and a host of "Money Talks" on FNN. Ashton says she was approached by an agent who asked if she wanted to write a book; she did. Two publishers were interested in her work, and now her consumer manual, *Guide to Living on Your Own* (Little, Brown), is in its third printing.

ADVANCES, ROYALTIES, AND OTHER MONEY MATTERS

You may read about million-dollar advances, but as a first-time writer the probability of getting such money is virtually nil. More plausible is a smaller sum, say \$1,000 to \$10,000.

The joy associated with advances should be tempered by two thoughts: First, an advance is a credit against future royalties. If your book generates \$25,000 in royalties and you received a \$7,500 advance, the publisher owes you only \$17,500. Second, advances are commonly paid in draws, say half when the contract is signed, half when

the manuscript is delivered.

How much you ultimately receive depends on the type of book published and the number of copies sold. With hardcover books, a typical arrangement works like this: 10 percent of the first 5,000 books, 12.5 percent of the second 5,000, and 15 percent of any additional sales. If a book's retail price is \$16.95 and 18,000 copies are sold through bookstores, the author receives \$39,408.75.

The catch is this: Some publishers base royalties on the retail price shown on the inside cover while others figure royalties on wholesale prices. Since bookstores commonly receive a 30 to 42 percent discount, figuring royalties on the wholesale price means fewer dollars for the author. In addition, lower rates usually apply to book club sales, mail orders, and foreign sales.

Paperback books commonly sell far more copies than hardcovers, but royalty rates are much lower, typically 7.5 percent. If a paperback sells 50,000 copies at \$8.95 each, an author can earn \$33,562.50—assuming royalty rates are based on cover prices.

In addition to outright book sales, authors may also share in the profits from foreign rights, serial rights (when a book is reprinted in part by a magazine), movie rights, and paperback rights (when a hardcover book is sold so another publisher can reprint it in paperback editions). The rights to Braille,

large type, and special editions for handicapped individuals are often provided without extra charge.

Although royalty checks do exist, not every author gets one. When relatively few books are sold, it is possible for advances to exceed royalties, which means the writer receives no additional payments. (Writers are not normally required to repay advances if a book sells poorly.)

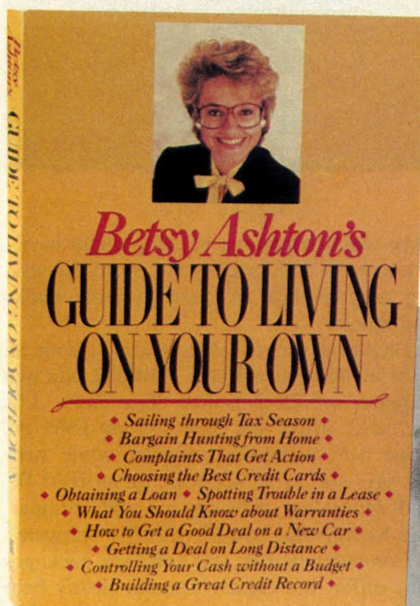
The bottom line: Always try to get an advance and seek hardcover publication first. Continue hardcover sales as long as possible and don't bring out a paperback edition until the hardcover market closes down.

REGISTER A COPYRIGHT

In the world of literature, there is no copyright for ideas—only for their expression, description, and illustration. The nature of writing is such that two people, or 50 people, can develop books on the same subject. If you're not the first to write in your field, don't worry, there's always room for another book. Just look at business management. Despite hundreds of books on the subject, new guides such as *In Search of Excellence* and *Leadership Secrets of Attila the Hun* have reached the best-seller lists in recent years.

The material you create is yours, but there are circumstances in which you can assign or sell your rights to others. For example, as a condition of employment, it can be agreed that anything written during business hours belongs to the employer. Or, you can be an independent contractor and sell your material to others. In effect you are not selling paper or disks but rather the right to use your words.

It is possible to sell not only all rights granted with a copyright but also specific rights. For example, you might sell first-serial rights to a magazine, and later sell



Drawing on her skills as a reporter and interviewer, Betsy Ashton researched and wrote *Guide to Living on Your Own*, which helps people deal with the problems of everyday life.



PHOTOGRAPH BY BETH BAPTISTE

book rights to a publisher, a system used by many authors to increase their income while holding down their work load.

To register a copyright, two copies of your work must be sent to the Copyright Office in Washington. The fee is just \$10, and you can order forms without charge by calling (202) 707-9100. If you need information, call the Copyright Office's specialists at (202) 479-0700.

around the country are offering database systems that might not be affordable or practical for individuals to subscribe to.

HOW COMPUTERS CAN HELP

When it comes to high technology, authors fall into two camps—those who produce text only and those who create graphics to accompany their words. For text-oriented writers, the tools used to shape and

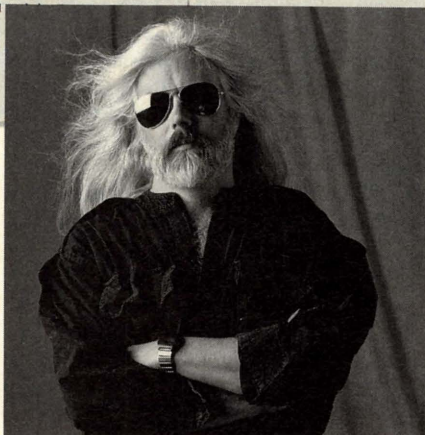
such results is a laser, ink-jet, or daisy-wheel device is irrelevant.

Given that we now live in a high-tech world, it might seem as though publishers would prefer disks to paper, but that is rarely the case. "The typical editor," says Davidson, "even in 1990, does not have a PC on his or her desk."

For authors who use graphics, however, the viewpoint is very different. Tucson artist



Artist Lawrence Lee used a Macintosh II with PixelPaint software to create *The Mirror*, a modern-day fable.



GETTING STARTED AT HOME

Those with home-based businesses are ahead of most would-be authors when it comes to writing books. The computers and software that churn out business letters, charts, and invoices can also be used to write books. Home-based entrepreneurs have another advantage as well—expertise in a specific field. And being self-employed or heading a business means you have initiative, drive, and a level of resourcefulness that authors need.

There is no standard approach to book development. Some book concepts arise from information that is read, seen, or heard. Other ideas evolve from experience in a given field or in response to the ideas of others. However it starts, many writers have files and drawers filled with articles and news stories.

Ashton, the reporter, says she has always been "very good about clipping. That was the basis of the book. Also, I kept every script I ever did. I could then call sources and update information. Without the files I couldn't have done the book."

In the computer era, the researching process has been greatly simplified by the development of on-line systems such as Dialog, Dow Jones News/Retrieval, and CompuServe. In addition, more libraries

form manuscripts can be simple and basic. A computer and virtually any word-processing program are sufficient to write books and articles.

Davidson uses *WordPerfect 5.0* with an IBM PC that has a 40MB hard disk and two floppies: a 5.25-inch disk drive and a 3.5-inch disk drive. Dickson uses an IBM PC clone with *WordStar* software, while Ashton says she wrote her book on an IBM PC with *MultiMate*. Edwards has a PC-compatible Kaypro and *WordPerfect 5.1* software.

Computer brands and software packages may differ, but certain features clearly help text writers. Spelling programs, either within a word-processing package or as separate programs, are essential. Programs that automatically produce a table of contents save time and labor. The ability to combine files, to view two files at once, and to move material from one file to another greatly speeds writing and rewriting.

As for printers, there is no substitute for letter-quality manuscripts among top publishers. Whether the machine that produces

Lawrence Lee relied entirely on computers and disks to develop his children's book, *The Mirror* (Harbinger House).

Working from a 1,200-square-foot home office, Lee used a Macintosh II with 5MB of memory and a 144MB internal hard drive to create vibrant illustrations. With *PixelPaint* software, Lee created a file for each illustration and then uploaded the files to a service bureau in Arkansas. The Arkansas company used Lee's files to create 35-mm slides, and the slides, in turn, were sent to Singapore, where the book was printed. Lee is one of the first authors, says Harbinger House, to use original full-color computer graphics to illustrate a children's book.

A WRITER'S SECRET TO CLEAN COPY

Like professionals in every field, writers have their trade secrets and shortcuts that make their work easier and better. For \$100 or less you can acquire software to serve as the combination editor, proofreader, and critic to perfect your work.

Style, punctuation, and grammar checkers zip through files and then point out selected words, phrases, and punctuation marks that seem questionable or inappropriate. The attraction of such a system is not that the checker is always right, but that a writer must justify, change, or at least think about each item highlighted by the checker.

While style is a matter of taste, punctuation and grammar rely largely on rules and conventions. Checkers look for misplaced commas, extra spaces, repeated words, un-

HOW TO MARKET YOUR MANUSCRIPT

Your local bookstore is a tranquil place where wisdom garnered over thousands of years is accessible to anyone with a few dollars or a credit card. It is also a Darwinian battleground where publishers compete for shelf space and sales.

Because new books are constantly coming out—55,483 new titles were introduced in 1988, according to *Publishers Weekly*—there is enormous competition for shelf space in the nation's 24,000 bookstores. Individual books must either sell or be replaced by titles that do. If a book is not widely distributed, well publicized, and selling briskly within 60 to 90 days after publication, it will quickly fade from view.

The search for a good publisher is tied directly to bookstore needs. To avoid writing books that last two months before dropping from sight, authors need publishers who can package, promote, and distribute books with zeal and commitment. Whether you elect to market your manuscript to an agent or directly to a publisher, a good book proposal is the key to publication. In the space of several pages you need to say why your book will sell, who will buy it, how it can be sold, why you are qualified to write about a given subject, and how you can help the publisher.

Developing proposals is a difficult art that requires writing and rewriting to achieve the best results. Here are seven steps to building stronger proposals.

1. Before attempting a book, write—and publish—something shorter, such as an article or story. This tells book editors that you can write, that you have been published, and that there is a market for your material.

2. Define your market. If you have a book that might interest franchise owners, then your letter should include such information as the number of franchise owners, how many new franchises will open in the coming year, and how much money the typical franchise owner invests in his or her business.

3. Suggest promotional strategies and outlets. Publishers should have strong publicity departments, but you may be able to suggest professional and regional media outlets with an interest in your book.

4. Be sure to define your book's physical dimensions. A manuscript with 300 double-spaced pages and 20 charts represents a different economic package than a book with 1,000 pages and 50 color photos.

5. When providing an outline or a table of contents, always say that such items are subject to change. The reason: As books develop it is often necessary to add material or to delete chapters listed in the original proposal.

6. Never discuss money in a proposal letter. The immediate issue is finding a publisher. Once an agent or publisher likes your concept, contract issues can be addressed.

7. Before sending a proposal, make certain it is going to the right person at the proper address. Call the publisher to update information and confirm spelling.

closed quotations, and other mistakes that affect manuscript quality.

Much like spelling checkers, style and grammar programs, such as *Grammatik IV* from Reference Software, have three features which make them valuable to writers:

- They never tire or falter. As a writer, you may miss repeated words or an inappropriate phrase when reading copy, but the checker is consistent. It searches for the same phrases, marks, and words every time.

- Writers can customize style checkers to locate objectionable words and phrases or just expressions that should be used with care. Customized lists can be important if you work in a given field or if you use certain words and terms too frequently.

- Checkers are a teaching tool. What better way to learn about writing than to have a tutor that methodically reviews your work sentence by sentence? Using a checker over time allows writers to spot frequent errors and then, gradually, to purge such mistakes from their writing.

MAYBE YOU DON'T NEED A PUBLISHER

Publishers have an important role in the editing, production, and distribution of books, but not every book needs a publisher.

There is always the self-publication alternative—writing, producing, promoting, and distributing your own book. Computer technology makes typesetting easy, and photo-ready manuscripts can be printed and bound by book manufacturers.

More difficult, however, are the twin problems of promotion and distribution. As an author/publisher you need to promote your book. At the same time, if your book is well known but unavailable to prospective buyers, promotional efforts are wasted.

The solution is to mount a balanced public relations and distribution plan. To reach booksellers, make the book available via fulfillment companies, commissioned sales people, and wholesale distributors. Before the book is distributed, however, start promotional efforts so that public demand exists by the time your book is generally available. Promotional efforts must occur before distribution because it often takes weeks or months to place ads or to obtain reviews and media coverage.

Self-publishers can also market books through direct mail. Instead of promotion directing people to bookstores, buyers are given a mailing address where they can send checks. Direct mail can be lucrative, but it is not easy. You need to put your name and your book before the public on a continuing basis. For works of fiction this is terribly difficult, but for pamphlets, booklets, and nonfiction, direct mail is workable.

Self-publishers can promote their books in several ways:

- Think about publications interested in your subject and send copies to individual editors. In addition to general-circulation

newspapers and magazines, also consider industry, association, professional, and union outlets, as appropriate. Mailing lists can be developed from media guides available at most libraries.

- Look for both stories and reviews. Reviews can be important, but feature stories with you as a subject or source can also generate sales.

- Write for publications where you can use your experience, expertise, and knowledge—and where your book can be plugged. Alternatively, allow a publication to reprint a portion of your book and cite you as the expert.

- Attempt to hit the talk-show circuit. You can do radio talk shows from your house to broadcasters throughout the country. Talk-show producers can be identified through media directories at most libraries.

If you are successful as a self-publisher, there are two additional business chances to consider. First, a major publisher may want to buy your book. With a better distribution network and a full-time promotional department, a large publisher may be able to greatly magnify sales. Second, if you're successful, perhaps you could make the transition from self-publisher to publisher and produce the works of others.

In addition to a copyright, as a self-publisher you will want to obtain an ISBN number. ISBN numbers are used by book retailers and others to order books, an important consideration if you want to reach bookstores. To obtain a free ISBN number call (212) 337-6971 and ask for an application. Once the application is returned to ISBN, it takes about three weeks to get your number. Since you want an ISBN number on your publication, be sure to apply well before going to press.

So what are you waiting for? Yours may be the next best-seller. ■

RESOURCES

There are people, groups, and products available to help first-time authors. Among the best are the following:

1990 Writer's Market (\$23.95; Writer's Digest Books). The author's bible, this annual guide of more than 1,000 pages provides extensive information about book publishers, magazines, and agents. It discusses such matters as advances and the number of manuscripts received and accepted by a publisher.

The Yearbook of Experts, Authorities & Spokespersons. An annual compendium sent to talk-show hosts; lists many of the people who appear on talk shows. You can be listed for \$195. A good resource for self-publishers. For information write to the Broadcast Interview Source, 2233 Wisconsin Avenue, Washington, DC 20007. Individual copies of the directory are available for \$37.25.

Literary Market Place (\$110; R.R. Bowker). Found in most libraries, this annual directory contains extensive listings of book publishers, manufacturers, and agents. Of particular value are editor names and titles for each publisher.

Building a (\$2.5 Million) Business

Follow the Bruners' Formula for Success

BY LIS FLEMING

Linda and Evans Bruner built their business from the ground up. The basement in their Bridgeport, Connecticut, home is the headquarters for a high-tech consulting corporation that provides Fortune 500 clients with the services of more than 400 highly skilled computer consultants.

Bruner Consulting Associates, Inc., began 10 years ago when Linda and Evans Bruner both left well-paid positions to be home when their children, seven-year-old Jeb and five-year-old Robin, returned from school each day. They called in Evans's brother to panel the basement and turn it into an office. Then they set out to implement their business plan and turn their professional skills into a profitable and growing business. And they certainly are growing—revenues in 1989 (\$2.5 million) were double those of 1988.

As consultants to big corporations, the Bruners set up computer systems for information management—accounting, inventory optimizing, manufacturing costs, and market research. The Bruners arrange for the design of hardware and programming of software systems, and help train company personnel to use and maintain their systems.

The Bruners started out with a business plan that called for two stages of development. During the first stage, the two of them worked alone on client projects. As their reputation for quality grew, so did their client list and the need for more experts to do the work.

During the second stage, they expanded the business with subcontractors. Members of project teams are employees of the client or independent consultants. The more subcontractors the Bruners hire, the more contracts they can fulfill, and the more they earn.

This article capsulizes the steps the Bruners took to ensure solid and steady business growth. Professionals with other expertise can follow the same general steps to build a business in a different field.



PHOTOGRAPH BY TONY LOEW

SNAPSHOT

Evans and Linda Bruner, computer consultants

RESIDENCE: Bridgeport, Connecticut

BUSINESS: Bruner Consulting Associates, Inc., provides information-systems management and planning for large Northeast corporations.

GROSS ANNUAL INCOME: \$2.5 million

EQUIPMENT: Two Acer 1100s, Acer 900, two IBM PC XTs, Toshiba 5100, Burroughs B-21

computers; Hewlett-Packard LaserJet Series II, three Okidata dot-matrix printers.

SOFTWARE: dBase, Lotus 1-2-3, R:Base 5, Oracle, Nomad, Paradox, Focus, MultiMate, Microsoft Word, WordPerfect, DisplayWrite 4, Accounting Plus, Project Managers Workbench.

Rx FOR SUCCESS: "Write a business plan that targets your market and follow it. Keep overhead low and expand by forming a network of trusted outside subcontractors."

1. Build on Your Background. The Bruners built their business on experience gained from working with large computer systems. Evans worked for large corporations such as Emerson Electric in Milford, Connecticut, and Crawford & Russell, a Stamford, Connecticut, engineering and construction firm. Evans has an MBA in finance and knows several computer languages. He's worked with mainframes, minis, and micros, and the company offers consulting in all three environments.

Linda has a master's degree in mathematics. She learned to work with mainframe and mini systems as part of her work in the field of education. Based on her academic research and work as an algebra teacher, Linda wrote a basic computer curriculum for the Connecticut public schools.

2. Write and Follow a Business Plan. As noted above, the Bruners started with a business plan, which Evans cites as their most important step. Besides setting a clear two-stage plan for growth, the plan identified a target market: large Northeast corporations. Why? The Bruners have experience in that market; the market can afford their services; and the market is large and won't go away, since companies will continue to need their services as they grow and technology changes.

3. Incorporate. In the Bruners' target market, corporations do business with other corporations. To be considered serious consultants, the Bruners felt they had to incorporate. In addition, Evans believes that being incorporated protects them from liability, which is important when dealing with large companies that could easily outspend them in a lawsuit and take all their worldly possessions. Forming a corporation, which cost about \$1,000, was the only real start-up cost the Bruners had.

4. Keep Overhead Low. Like millions of other Americans, the Bruners used their home as an incubator for their business. Thus, they pay no rent for commercial office space. They started with only a telephone and a computer, mainly for record keeping and correspondence. Though the Bruners have acquired more equipment and software, they haven't had to invest heavily because computer consultants usually work directly on the client's equipment.

5. Build Your Professional Reputation. In most service businesses, the best way to build a reputation is by performing superior work for a client, which often leads to referrals. The Bruners have bolstered their professional credentials with membership and positions in trade organizations. Both Linda and Evans have served as presidents of chapters of the Data Processing Management Association. Evans presided over the Stamford chapter in 1985, and Linda was

president of the southern Connecticut chapter in 1988. Evans is currently president of the Independent Computer Consultants Association.

6. Form a Network of Professionals. Since the Bruners can't handle all the work that comes their way, they've built a network of more than 400 independent consultants

The Bruners have developed special market niches. This strategy helps them get a foot in the door and often leads to follow-up work in other areas.

whom they can call on as needed. These consultants have an average of 15 years' experience in computer- and business-related fields. Evans sometimes works on project teams as a manager or technician; other times, he subcontracts out the whole job and inspects the final product.

7. Establish Market Niches. In addition to their general information-management services, which are their bread and butter, the Bruners have developed special market niches. This strategy helps them get a foot in the door and often leads to follow-up work in other areas.

One of their specialties is compensation data. The Bruners conducted a salary-compensation comparison survey of 28 Fortune 500 companies, and the results are of great interest to other corporations.

Another specialty is expert systems. The Bruners developed customized software for the manufacturing, insurance, and banking industries.

A third niche is productivity. The Bruners have studied ways to get more out of workstation software and other group-work tools.

8. Keep Tight Financial Control. The Bruners use *Project Managers Workbench* software (Advanced Business Technologies) to determine whether a project is profitable and will fit their schedule. Evans has turned down projects because clients had unreasonable financial expectations or he foresaw scheduling problems. It keeps them out of no-win situations, where they might lose money or tarnish the business's reputation by having to work too quickly to meet a deadline.

With the help of an accountant, Linda and Evans track the financial end of the business. Evans feels that doing your own ac-

counting is the only way to know what's going on in your company. The Bruners use *Accounting Plus* (Systems Plus), as well as customized software, to project cash flow and track profits.

9. Expand Through Marketing. Satisfied customers are the Bruners' main client base; they have a great deal of repeat business. Today, Linda spends most of her time meeting with clients to learn their needs and recommend solutions. Linda uses customized client-management software that tracks phone calls, follow-up letters, and visits.

Though most of the Bruners' new business comes through referrals, they also contact potential clients by making a telephone call, sending a brochure, and following up with a visit. The brochure helps clients understand realistic objectives and schedules and prevents future misunderstandings.

Linda found that in order to continue growing, the company needed an office closer to clients. So the Bruners set up a marketing office in a building in Stamford, Connecticut, home to many large companies. The office is directed by a full-time employee.

10. Set Competitive Prices. Because of their low overhead, the Bruners set day rates just below those of big consulting firms. For jobs in Connecticut, the Bruners charge \$600 to \$800 per day, depending on the expertise needed for the project. They charge a higher rate when they have to travel and for work in Manhattan (\$1,000 to \$1,200 per day).

Cost-per-project depends on the number of outside consultants on the team and on how much they charge for their services. Team members usually charge \$400 to \$500 a day, although individuals with hard-to-get expertise charge as much as \$1,000 a day. For management-consulting projects, the Bruners set a fixed fee based on estimates of how long it will take to conduct a study and prepare a report.

11. Plan Ahead. The Bruners plan to continue expanding the business by adapting their services to keep up with changes in technology. While their specialty will always be related to technology, Evans sees the company going in the direction of management consulting. He believes the future of programming is being altered by the emergence of software that is more user friendly. Corporate technicians will be better able to maintain and program this new software, taking over the role of today's computer consultant. Evans says that the outside business analyst will have a much more important role than the computer consultant of the future.

Just as the Bruners started with a business plan and have continued to follow it for 10 years, they are now revising it to prepare the third stage of their company's development. The plan calls for them to stay in the basement, where the overhead is as low as the ceiling. ■

HOME-OFFICE SURVEY

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Annual Survey
HOME-OFFICE COMPUTING
730 Broadway
New York, NY 10003

THE DEADLINE FOR THIS SURVEY IS JUNE 30, 1990.

And, by helping us, you could be helping yourself to a new Murata M1800 fax machine. One respondent, selected at random, will receive the fax, and 20 runners-up will get a free 20-pack of floppy disks (5.25- or 3.5-inch) from Fuji. The results of the survey and a list of winners will appear in a future issue.

Name: _____

Type of Business: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Age: _____ Sex: _____

Marital Status: Married Single

Children: 0 1 2 3 4 5 or more

Educational Background:

- | | |
|-------------------------|-----------------------------|
| a. Attended high school | d. College graduate |
| b. High school graduate | e. Attended graduate school |
| c. Attended college | f. Obtained graduate degree |

1. In my present situation I (circle all that apply):
- a. run a full-time home-based business.
 - b. run a full-time business that is not home-based.
 - c. run a part-time business or I freelance.
 - d. work at home after hours.
 - e. work from home at least one day a week (telecommute).
 - f. don't run a business, but I'm interested in starting one.
 - g. never plan to start a business or work from home.
 - h. Other: _____

2. My home-based business operates as a:
- a. sole proprietorship.
 - b. subchapter S corporation.
 - c. subchapter C corporation.
 - d. partnership.
 - e. limited partnership.
 - f. Other: _____

3. My business is:
- a. service-based.
 - b. product-based.
 - c. both, but the majority of work is service oriented.
 - d. both, but the majority of my work is product oriented.

4. My clients are:
- a. consumers.
 - b. other businesses.
 - c. both, but mostly consumers.
 - d. both, but mostly other businesses.

5. I've worked at home for:
- a. less than a year.
 - b. 1 to 3 years.
 - c. 3 to 10 years.
 - d. more than 10 years.

6. I decided to work from home because (circle all that apply):
- a. I wanted to spend more time with my family.
 - b. I was fired.

- c. I am retired.
- d. I'm more productive at home.
- e. I hated the commute.
- f. I wanted to change my life.
- g. I wanted to be my own boss.
- h. I wanted to make more money.
- i. I wanted to save money on overhead and employees.
- j. I prefer to work alone.
- k. I disliked the corporate world.
- l. I had gone as far as I could working for someone else.
- m. Other: _____

7. I am happier / less happy / about the same working from home.

8. I would / wouldn't recommend working from home to others.

9. I keep informed about my field and in touch with other business people by (circle all that apply):

- a. attending meetings of professional organizations (please list) _____
- b. participating in on-line forums (please list) _____
- c. attending trade shows/seminars.
- d. networking at social occasions.
- e. subscribing to professional journals.
- f. enrolling in continuing education programs.
- g. Other: _____

10. I got the capital for my business from (circle all that apply):

- a. my own savings.
- b. friends/relatives.
- c. bank business loan(s).
- d. home-equity loan(s).
- e. SBA or other government loan(s).
- f. Loans against insurance.
- g. IRA or 401K savings.
- h. venture capital funds.
- i. company stock offerings.
- j. outside investors.
- k. franchise sales.
- l. Other: _____

11. I need help with (circle all that apply):

- a. secretarial matters.
- b. accounting/finance.
- c. marketing/sales.
- d. managing my time.
- e. taxes.
- f. technology & computerizing.
- g. legal matters.
- h. expansion.
- i. design/graphics.
- j. preparing presentations.
- k. setting fees.
- l. business writing.
- m. equipment purchasing.
- n. billing/collections.
- o. public relations/publicity.
- p. stress management.
- q. avoiding isolation.
- r. balancing family/business.
- s. insurance.
- t. using the mail effectively.
- u. drafting a business plan.
- v. getting organized.
- w. hiring.
- x. investing.
- y. Other: _____

12. Some of the things I miss about working in the corporate world are (circle all that apply):

- a. support services.
- b. managing a staff.
- c. interacting with others on a regular basis.
- d. socializing more.
- e. not having all the responsibility.
- f. meetings.
- g. company-paid benefits.
- h. a greater sense of prestige or importance.

- i. I did not work in a corporate environment.
 j. I don't miss anything.
 k. Other: _____

13. I could see myself going back to working for someone else someday. ☐ Yes ☐ No

14. I would like to expand my current business outside of my home.
 ☐ Yes ☐ No

15. I employ _____ other people full- or part-time.
 a. 0 b. 1 c. 2 d. 3 e. 4 f. 5 or more

16. My employees and I:
 a. work together in my home all the time.
 b. work together in my home part of the time.
 c. work by telecommuting.
 d. only work face-to-face a few times a month.
 e. I have no employees.
 f. Other: _____

17. My business grosses about _____ a year.
 a. \$0 to \$5,000 e. \$100,001 to \$500,000
 b. \$5,001 to \$20,000 f. \$500,001 to \$1 million
 c. \$20,001 to \$50,000 g. \$1 million or more
 d. \$50,001 to \$100,000

18. I make more than / less than / about the same as I did before I started my business at home.

19. I use the following computer(s) for my business:
 a. IBM or compatible laptop
 b. IBM or compatible 8086- or 8088-based desktop
 c. IBM or compatible 80286-based desktop
 d. IBM or compatible 80386- or SX-based desktop
 e. IBM or compatible 80486-based desktop
 f. Macintosh portable or equivalent
 g. Macintosh Plus or SE
 h. Macintosh SE/30 or Mac II series
 i. I do not use a computer, but I plan to buy one.
 j. I use a mainframe computer or terminal.
 k. Other: _____

20. Hardware:

I own		I plan to buy
<input type="checkbox"/>	desktop computer	<input type="checkbox"/>
<input type="checkbox"/>	laptop computer	<input type="checkbox"/>
<input type="checkbox"/>	fax machine	<input type="checkbox"/>
<input type="checkbox"/>	laser printer	<input type="checkbox"/>
<input type="checkbox"/>	dot-matrix printer	<input type="checkbox"/>
<input type="checkbox"/>	portable printer	<input type="checkbox"/>
<input type="checkbox"/>	scanner	<input type="checkbox"/>
<input type="checkbox"/>	modem	<input type="checkbox"/>
<input type="checkbox"/>	fax board or modem	<input type="checkbox"/>
<input type="checkbox"/>	copier	<input type="checkbox"/>
<input type="checkbox"/>	multiline phone	<input type="checkbox"/>
<input type="checkbox"/>	cordless phone	<input type="checkbox"/>
<input type="checkbox"/>	cellular phone	<input type="checkbox"/>
<input type="checkbox"/>	new monitor/card	<input type="checkbox"/>
<input type="checkbox"/>	more memory	<input type="checkbox"/>
<input type="checkbox"/>	more storage	<input type="checkbox"/>
<input type="checkbox"/>	mouse/track ball	<input type="checkbox"/>
<input type="checkbox"/>	other: _____	<input type="checkbox"/>

21. I've spent _____ equipping my home office in total.
 a. \$0 to \$1,000 c. \$5,001 to \$10,000
 b. \$1,001 to \$5,000 d. more than \$10,000

22. I plan to spend _____ this year equipping my home office.
 a. \$0 to \$1,000 c. \$5,001 to \$10,000
 b. \$1,001 to \$5,000 d. more than \$10,000

23. Software:

I own		I plan to buy
<input type="checkbox"/>	accounting software	<input type="checkbox"/>
<input type="checkbox"/>	business graphics	<input type="checkbox"/>
<input type="checkbox"/>	communications	<input type="checkbox"/>
<input type="checkbox"/>	database	<input type="checkbox"/>
<input type="checkbox"/>	desk accessory	<input type="checkbox"/>
<input type="checkbox"/>	desktop publishing	<input type="checkbox"/>
<input type="checkbox"/>	integrated package	<input type="checkbox"/>
<input type="checkbox"/>	investment	<input type="checkbox"/>
<input type="checkbox"/>	paint/draw utility	<input type="checkbox"/>
<input type="checkbox"/>	personal finance	<input type="checkbox"/>
<input type="checkbox"/>	personal info manager	<input type="checkbox"/>
<input type="checkbox"/>	spreadsheet	<input type="checkbox"/>
<input type="checkbox"/>	word processor	<input type="checkbox"/>
<input type="checkbox"/>	other: _____	<input type="checkbox"/>
<input type="checkbox"/>	_____	<input type="checkbox"/>
<input type="checkbox"/>	_____	<input type="checkbox"/>

24. Graphical user interface:

I own		I plan to buy
<input type="checkbox"/>	Microsoft Windows	<input type="checkbox"/>
<input type="checkbox"/>	Macintosh	<input type="checkbox"/>
<input type="checkbox"/>	other: _____	<input type="checkbox"/>

☐ I am not interested in any GUI.

25. I've spent _____ on software for my home business in total.
 a. \$0 to \$500 d. \$3,001 to \$5,000
 b. \$501 to \$1,000 e. more than \$5,000
 c. \$1,001 to \$3,000

26. I plan to spend _____ on software this year.
 a. \$0 to \$100 d. \$1,001 to \$2,000
 b. \$101 to \$500 e. more than \$2,000
 c. \$501 to \$1,000

27. The most valuable information I get about things I buy for my business comes from:

a. product reviews in magazines.	f. friends or relatives.
b. product brochures.	g. consultants.
c. advertisements.	h. business associates.
d. salespeople.	i. organization recommendations.
e. the manufacturer.	j. Other: _____

28. I got this copy of HOME-OFFICE COMPUTING from:
 a. a supermarket. d. a bookstore.
 b. a newsstand. e. I'm a subscriber.
 c. a friend. f. Other: _____

29. I read HOME-OFFICE COMPUTING for (circle all that apply):
 a. business advice and ideas. c. product reviews.
 b. computer information. d. a mixture of all the above.
 e. Other: _____

30. I would like to see the following topics covered in upcoming issues of HOME-OFFICE COMPUTING:

First-Rate Fax, Low-Cost Laser, All-Out Answering Machine

About Our Reviews and Ratings

Every month, we take an in-depth look at new computers, computer peripherals, and other home-office hardware, such as fax machines, telephones, and copiers. We concentrate on products we believe will be of value to our readers—productive tools for the home- or small-business environment.

Each product is evaluated on its performance, features, documentation, setup, ease of learning and use, versatility, availability, warranty, support, and value; then HOME-OFFICE COMPUTING's technical editors assign an overall rating on a scale of zero to four stars:

○	Poor	★★★	Very Good
★	Fair	★★★★	Excellent
★★	Good		

These ratings also reflect extensive use and testing of the equipment by our expert reviewers working in their own home offices.

Note on Hardware Requirements:

Any product listed as requiring an IBM PC/XT/AT or compatible should also work with an IBM PS/2 Model 25, Model 30, or Model 30 286.

Fast, Pricy 386 Computer

Hertz 386/25

Rating: ★ ★

AT A GLANCE: Fast; plenty of room for expansion; 2MB of RAM standard; free telephone support; high price.

DOCUMENTATION: Adequate; not outstanding.

SETUP: Straightforward.

EASE OF USE: Fine; nothing noteworthy.

VALUE: Fair; premium price for a generic product.

SUPPORT: Numerous service options; free telephone support.

PRICE: \$5,595 (CPU and keyboard only)

MANUFACTURER: Hertz Computer Corp., 325 Fifth Ave., New York, NY 10016; (212) 684-4141; (800) 232-8737

MICROPROCESSOR: Intel 80386 (25 MHz), zero wait states; socket for Intel 80387 or Weitek 3167 (math coprocessors)

MEMORY: 2MB, expandable to 24MB on system board; 64K high-speed memory cache

DISK DRIVES: 3.5-inch 1.44MB or 5.25-inch 1.2MB floppy-disk drive

PORTS: One parallel, two serial

FREE EXPANSION SLOTS: One 8-bit, five 16-bit, two 32-bit

SOFTWARE INCLUDED: DOS 3.3 or 4.1

OPTIONS: 72MB hard-disk drive (\$1,195); VGA adapter (\$325); VGA color monitor (\$780); additional floppy-disk drive (either format, \$185)

DIMENSIONS: 21.3 by 18.7 by 6.5 inches

WARRANTY: One year

In an effort to graduate from small-player status as a computer manufacturer, Hertz has developed a line of high-performance, high-priced systems. Those concerned with quality will be interested to know that basic components of the Hertz 386/25—the system board, case, and power supply—are manufactured by Intel. These components are integrated by Hertz into a total system.

This is not the fastest 386 computer available (there are, of course, 33-MHz systems from many manufacturers), but the price/performance edge clearly goes to systems in the 25-MHz category. The Hertz's average millions-of-instructions-per-second (MIPS)



REVIEWED IN THIS ISSUE

Computer:

Hertz 386/25

Laser Printer:

OkiLaser 400

Fax Machines:

Murata M1800

Ricoh RF920

Answering Machine:

Code-A-Phone Model 2880

rating, a measure of a CPU speed, is 6, an impressive figure. The Norton Computing Index reports that the computer operates at 28.2 times the speed of an IBM XT. So if you're upgrading from an XT, fasten your seat belt!

The Hertz 386/25 is a heavy, large-footprint computer designed with expansion in mind, and despite two cooling fans, operates at a tolerable sound level. The front panel displays status lights for power and hard-disk access and incorporates a lock. The lack of a reset button is a minor design deficiency.

The keyboard supplied is a 101-key generic with a decent tactile click, but overall it strikes me as a bit flimsy.

The monitor (supplied for review purposes) is a Tatung VGA unit bearing a Hertz label. It does not stand out from the crowd, but it's a reliable performer with vivid colors and good sharpness. The 16-bit VGA video board (also optional, but supplied for review) matches the quality of most others of this type; it comes with a number of video utilities and software drivers.

The single slim manual accompanying the Hertz system is about average for system manuals from smaller companies. It won't tell you everything you could possibly want to know, but it will get you up and running.

The company offers a wide range of service and training options, and will answer routine technical questions over the phone—toll-free to customers outside New York, New Jersey, and Connecticut.

—HENRY F. BEECHHOLD

High-Quality, Low-Profile Laser

OkiLaser 400

Rating: ★ ★ ★

AT A GLANCE: Lowest-priced laser available; 17 resident fonts; compact and lightweight. Unable to accept third-party font cartridges, memory upgrades, or other add-ons. Difficulty in printing spreadsheet graphs.

DOCUMENTATION: Clear and well-organized.

SETUP: Simple and straightforward.

EASE OF USE: Worked well with a wide range of software.

VALUE: Excellent.

SUPPORT: Helpful and pleasant.

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PRICE: \$1,395

MANUFACTURER: Okidata, 532 Fellowship Rd., Mount Laurel, NJ 08054; (609) 235-2600

HARDWARE REQUIREMENTS: Computer with serial or parallel port (cable included)

MEMORY: 512K standard, 2.5MB maximum

MAXIMUM PRINT SPEED (TEXT): 4 pages per minute

MAXIMUM RESOLUTION: 300 by 300 dots per inch

RESIDENT FONTS: 17 bit-mapped (not scalable)

PAPER HANDLING: Single cassette, 200-sheet capacity

PAPER SIZES: Letter, legal, executive, A4; business envelopes

OPTIONS: Legal, executive, and envelope trays (\$89 each); font cards (\$195 each); 1MB memory upgrade (\$495); second megabyte of memory (\$445)

DIMENSIONS: 5.25 by 17.7 by 17.7 inches

WARRANTY: One year

Despite its name, the OkiLaser 400 is not, strictly speaking, a laser printer. It uses an array of light-emitting diodes (LEDs) to form an image. In use, however, you won't be able to detect a difference.

The printer behaved beautifully in almost every situation. None of my software came with drivers specifically for the OkiLaser 400, but the printer performed flawlessly with HP LaserJet drivers. The OkiLaser has a generous selection of resident fonts, including Times Roman 10-point roman, bold, and italic; Times Roman 8-point; and Helvetica 14.4-point bold.

The setup menus are straightforward and easy to use. One feature I particularly appreciated was the ability to adjust print density (darkness) from the front panel. With the default density setting, printing was noticeably lighter than with my LaserJet II, but I was able to correct this easily.

The few printing problems I experienced with the OkiLaser 400 stemmed, almost without exception, from insufficient memory. The printer comes standard with 512K of RAM; a 1MB expansion board is available from Okidata as well as a further 1MB upgrade (to bring total RAM to 2.5MB). The only other problem I encountered was when I tried to print a graph from within *Quattro Pro*. I simply could not make the printer do this, despite my lengthy conversation with Okidata's technical-support people. To print the graph, I had to save it as a .PIC file, import it into *Ventura Publisher*, and print it from there. This worked well, although it was a nuisance. The OkiLaser 400 had no problems printing the spreadsheet itself.

In addition to *Quattro Pro* and *Ventura Publisher*, I used the printer with *WordPerfect 5.1*, *Calendar Creator Plus*, and *Quick-en 3*. It integrated seamlessly with *WordPerfect* and printed my Bitstream fonts like a champ; I also used it with Glyphix, an on-

the-fly font generator for *WordPerfect*, with excellent results. I had no problems printing graphics from within *WordPerfect*. The OkiLaser also printed envelopes without problems, although they had to be hand-fed from the top of the paper tray (an optional envelope tray is available).

Okidata supplies a variety of fonts on small cards that list for \$195 each. Unfortunately, HP font cartridges are not compatible with the OkiLaser 400, nor are the large number of third-party add-on products available for the LaserJet family.

Okidata packages the toner and drum for this printer separately, not in a single cassette. The biggest (and perhaps only) drawback of this arrangement is that it makes it easier to get toner on your clothes. The manual is very clear and specific about how to do the job, however, and I experienced no problems and left no telltale fingerprints. The OkiLaser's toner cartridge, incidentally, is rated for about 2,500 pages of text; the drum should last between 11,500 and 15,000 pages, depending on what you print. Replacing the image drum will set you back \$289, but toner cartridges are only \$33.



The printer's documentation is exceptionally clear and well organized. It is broken down into four small manuals that are easy to consult and handle. The troubleshooting section was unusually extensive and helpful. The documentation also includes a guide to typesetting terms and design basics.

—EVA J. BLINDER

Superb Fax; Shabby Manual

Murata M1800

Rating: ★ ★

AT A GLANCE: This unit has many high-end features, but is hampered by weak documentation.

DOCUMENTATION: Poor.

SETUP: Difficult because of documentation.

EASE OF USE: Worked well; no problems.

VALUE: Very good for this feature-filled unit.

SUPPORT: Toll-free; pleasant and very helpful.

PRICE: \$1,299



MANUFACTURER: Murata Business Systems, Inc., 5560 Tennyson Pkwy., Plano, TX 75024; (214) 403-3300

COMPATIBILITY: Group 3

RESOLUTION: Standard (203 by 98 dots per inch [dpi]); fine (203 by 196 dpi)

GRAY SCALE: 16 levels

MAXIMUM SCANNING WIDTH: 9.9 inches

RECORDING PAPER LENGTH: 98 feet

MAXIMUM TRANSMISSION SPEED: 9600 bits per second (automatic fallback)

FEATURES: Polling, delayed transmission, 16-page internal memory, 5-page automatic document feeder, fax/voice switch, 100-number autodial (fax or voice), autorecord, document reduction

DIMENSIONS: 16.4 by 11 by 4.5 inches

WARRANTY: 90 days

Murata has an excellent reputation—mainly for being the first manufacturer to make fax machines affordable for small-budgeted businesses. It's unfortunate that a very good, feature-packed fax machine like the M1800 is packaged with a flimsy manual.

I searched the operations manual (cover to cover, twice) and couldn't figure out where an extra plastic part that was in the box belonged. I decided to toss it aside and continue with the setup. When I reached the point of installing the paper, I couldn't get the unit to print a test document. I kept getting a "paper out" message on the LCD. Finally, I broke down and called Murata's toll-free technical-support line. A pleasant, efficient woman asked if the paper was installed to the left of the paper guide. "What paper guide?" I asked. She proceeded to describe the unidentified plastic piece I had flung back into the carton. I retrieved it, snapped it into place, and *voilà!* The test document printed. The manual omits other important information as well, but I trust I've made my point.

After getting more help from Murata's technical-support people and drawing on the experience I've had with other fax machines, I was finally able to get the M1800 up and running. It worked like a charm—I had no difficulties sending or receiving faxes, nor did I encounter any problems using the memory function, which allows 16

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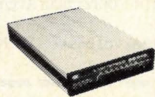
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CIRCLE READER SERVICE 37

HARDWARE REVIEWS

pages to be scanned and stored for delayed transmission (a feature usually found only on expensive units). Even the document feeder worked well—it didn't jam as often as those on other fax machines I've used.

I've been reviewing fax machines for a few years. I know how they work and I can usually set up and operate a unit without ever cracking open the manual. But this would probably be *your* first or second fax machine, and I doubt you'd want to be faced with a manual like this one. Nevertheless, I'll admit that \$1,299 is a good price for this feature-filled fax. —STEPHEN MILLER

Outstanding Fax

Ricoh RF920

Rating: ★ ★ ★ ★

AT A GLANCE: Excellent, feature-packed fax, perfect for a home office. A clever feature allows you to record an outgoing message to warn callers that they have reached your fax machine.

DOCUMENTATION: Easy to read; includes a handy reference guide.

SETUP: Simple.

EASE OF USE: Excellent; intelligent control panel.

VALUE: Very good.

SUPPORT: Pleasant and helpful.

PRICE: \$2,295

MANUFACTURER: Ricoh Corp., 5 Dedrick Pl., West Caldwell, NJ 07006; (201) 882-2000; (800) 637-4264

COMPATIBILITY: Group 3

RESOLUTION: Standard (203 by 98 dots per inch [dpi]); fine (203 by 196 dpi)

MAXIMUM SCANNING WIDTH: 8.5 inches

RECORDING PAPER LENGTH: 164 feet

MAXIMUM TRANSMISSION SPEED: 9600 bits per second (automatic fallback)

FEATURES: Polling, delayed transmission, 10-page automatic document feeder, automatic paper cutter, 125-number autodial (fax or voice), autorecall

DIMENSIONS: 12.9 by 12.8 by 4.28 inches

WARRANTY: 90 days

I've reviewed plenty of fax machines in my day, and for one to be "excellent" in my book, it has to meet a hefty list of criteria. I believe the ideal home-office fax machine should be compact, sturdy, and easy to set up and use, and have a voice/data switch, an automatic paper cutter, an automatic document feeder, a receiving tray for incoming documents—in the front of the unit—and a simple control panel. I would also applaud a machine with delayed transmission, polling, and internal memory for storing outgoing documents (for delayed transmission) or incoming material (if the paper runs out). The Ricoh RF920 meets the majority of my requirements; it even gave me a few features to add to my list.

My main complaint with the present generation of fax machines is that most companies make setup a mind-numbing exercise. Ricoh has made setup for the RF920 admirably simple: The user selects functions by entering a series of two-digit codes. Ricoh includes a handy reference guide that lists all 29 codes; it fits neatly in its own little slot at the back of the unit.

An automatic paper cutter is a must if you receive a lot of faxes. This is especially true if your fax number becomes public domain (as mine did) and you start to receive all kinds of junk faxes. It's bad enough that it costs a small fortune in fax paper, but without a cutter you might find yourself dealing with a sheet of paper 72 yards long! Do you have any idea how tedious it is to cut apart a 22-page manuscript, a 2-page letter, and a 4-page deli menu? Paper cutters are standard on top-of-the-line fax machines—the RF920 included.

The RF920 lets you record an outgoing message to warn callers that they've reached your fax machine; it gives them enough time to hang up before they get that ear-piercing squeal.

I'm hard-nosed about giving out four-star ratings. To get one from me, a product not only has to do its job well, but must do it with ease, style, and flair. The RF920 measures up. It has all of the features you'd expect to find in a large, expensive, industrial-strength office fax in a neat, compact package. It's outstanding.

—STEPHEN MILLER

Message Organizer

Code-A-Phone Model 2880

Rating: ★ ★ ★

AT A GLANCE: Acts as a small voice-mail system; separates personal and business calls.

DOCUMENTATION: Very good; easy to read.

SETUP: Simple; straightforward.

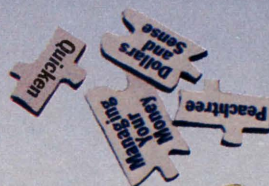
EASE OF USE: Worked well; encountered no problems.

VALUE: Very good for such a versatile unit.

SUPPORT: Good.



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Minimum Hardware Requirements: IBM or compatible computer, 640Kb, hard disk, mono or color monitor, mouse optional, MS-DOS 2.1 or later for single users (3.1 or later for networks), 132 column printer in compressed mode.

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PRICE: \$189

MANUFACTURER: Code-A-Phone Corp., 16261 S.E. 130th, Clackamas, OR 97015; (503) 655-8940

FEATURES: Time/date stamp, two digital message counters, remote message access, programmable security code

DIMENSIONS: 6.25 by 8.75 by 2 inches

WARRANTY: One year

The Code-A-Phone Model 2880 is not your everyday answering machine. Yes, it has fancy features like remote message access and a time/date stamp, but this unit is even more talented than the rest. The 2880 lets callers deposit messages into either of two



"mailboxes"—like a voice-mail system.

If you don't pick up the phone when someone calls, a recorded message instructs the caller on how to leave a message in either mailbox. Digital displays tell you how many messages are waiting in each mailbox, and separate controls allow playback of either tape.

After using the machine for a while, I began to appreciate the convenience. My outgoing message told callers to press "1" to leave a message for my wife, or stay on the line if they wanted to leave a message for me or if they were calling from a rotary phone (the 2880 responds only to tones). It was great—we could tell that we had messages waiting and whom they were for.

My only concern is about using this type of answering machine in a home office where one phone line is used for both business and personal calls. Consider a message like this: "If you're calling with a personal message for Steve Miller, please press '1.' If this is a call for Stephen Miller Associates, please stay on the line." This isn't a problem for me, since I'm a writer and a consultant and all of my clients know that I work from my humble abode. But you may want to present a different image, so choose your greeting carefully.

The Code-A-Phone 2880 is a versatile answering machine well worth considering.

—STEPHEN MILLER

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8

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- Easy-to-use with pull-down menus, full mouse support, and context-sensitive help.



The Best Word Processors for Windows

Word for Windows And Amí Professional Combine Graphic Control with Adept Text Handling

Are you ready for a fundamental change in the way you tackle word processing?

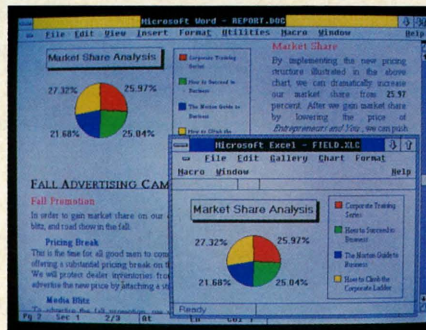
Most word-processing advances in the past few years have been incremental, such as the addition of a spelling checker, thesaurus, or macro facility to automate keystrokes. But the introduction of two powerhouse word processors operating under Microsoft *Windows* goes beyond adding more handy tools to our word-processing capabilities. Instead, it changes the way we see documents and interact with them.

Samna recently released *Amí Professional* (hereafter called *Amí*), big brother of the original *Amí*, a basic *Windows* word processor. *Amí* fills in the gaps in its earlier release without sacrificing the forthright working style I admired so much (see review in the June 1989 issue). Shortly thereafter, Microsoft published its long-awaited *Word for Windows* (hereafter called *Word*), combining *Word*'s strengths from both its Macintosh and MS-DOS variations into a single, graphically oriented program with no apparent omissions.

If you have the hardware required to run *Windows* efficiently (at least an 80286-based computer with 640K of RAM, a Hercules or EGA display system or better, and a hard-disk drive), either one of these programs will make word processing more intuitive, enjoyable, productive, and, in a word, better.

WHY WINDOWS?

The *Windows* operating environment provides a number of features that make programs easier to learn and control. Drop-down menus and pop-up dialog boxes, for example, make program commands and choices more accessible, and mouse control provides quick, easy movement through



Word for Windows incorporates a plethora of features with the ease of drop-down menus.

Word for Windows

Rating: ★ ★ ★ ★

AT A GLANCE: The most capable word processor around—known for feature-richness and versatility.

DOCUMENTATION: Extensive, yet learning curve a problem, since on-line tutorial is good but incomplete.

ERROR HANDLING: Excellent. Consistently gives clear, comprehensible error messages.

EASE OF USE: Very good for such a complex program.

SUPPORT: Questions were always answered courteously and authoritatively, but waiting on phone line—up to five minutes—costs money.

VERSION REVIEWED: 1.0

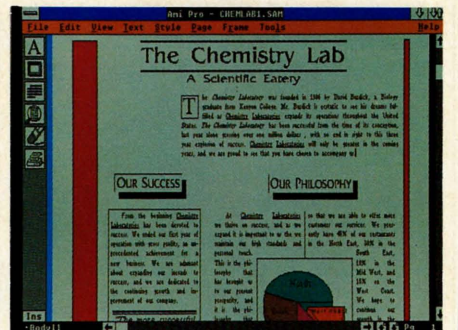
PRICE: \$495

SYSTEM REQUIREMENTS: 640K IBM PC AT, PS/2 (80286 microprocessor or better); hard-disk drive; CGA, EGA, or VGA; mouse recommended; Microsoft *Windows* optional; DOS 3.0 or higher; 5.25- and 3.5-inch

PUBLISHER: Microsoft Corp., One Microsoft Way, Redmond, WA 98073; (206) 882-8080

your documents. *Windows* also makes cutting and pasting information between different programs simple.

For me, though, the core benefit is the way *Windows* represents text and graphics accurately on-screen. In effect, *Windows*-based word processors such as *Word* and *Amí* take the guesswork out of document



Amí Professional's Frames function gives it the feel of a desktop-publishing program.

Amí Professional

Rating: ★ ★ ★ ★

AT A GLANCE: Clear, easy-to-operate commands and desktop-publishing power are two highlights.

DOCUMENTATION: Adequate manuals that could be better organized (and should have fewer typos), but excellent on-line help.

ERROR HANDLING: Excellent. No problems uncovered.

EASE OF USE: Excellent. Takes full advantage of *Windows*.

SUPPORT: Knowledgeable and helpful—even sent upgrade for free.

VERSION REVIEWED: 1.0

PRICE: \$495

SYSTEM REQUIREMENTS: 640K IBM PC AT, PS/2 (80286 microprocessor or better); hard-disk drive; CGA, EGA, or VGA; mouse recommended; Microsoft *Windows* optional; DOS 3.0 or higher; 5.25- and 3.5-inch

PUBLISHER: Samna Corp., 5600 Glenridge Dr., Atlanta, GA 30342; (404) 851-0007

preparation by tightening up the relationship between what you see and what you get.

A LOT IN COMMON

Both programs are solid, high-end word processors, providing the core set of features that define this category. These include footnoting, sophisticated mail merge,

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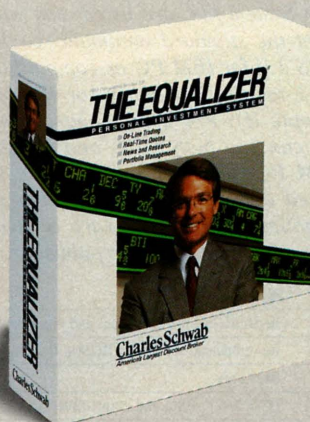


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a capable spelling checker and thesaurus (each thesaurus displays definitions along with synonyms), table of contents and index generation, sorting, complex headers and footers, macros, and extensive on-line help.

Some of the features found in sophisticated text-based word processors work especially well in these Windows-based programs. Creating a document with multiple columns, for instance, is much simpler when they are displayed accurately on-screen. It's easy to adjust column break points and move from column to column by simply clicking with your mouse. Other high-end features include the following:

Sharing files. *Ami* and *Word* both provide extensive import/export capabilities. If you or a client works with another major word processor, you'll have little trouble opening the document files with *Ami* or *Word* and maintaining most of the formatting. Equally important for those of us who share files with others, you can export the documents you create with these two programs into a number of other popular formats.

Formatting quickly. Both programs rely on the styles concept to quickly format text. A style is a named set of formatting instructions—typeface and size, alignment, margins, and so on—applied to a paragraph. You might define a style called *Headline*, another called *Subhead*, and a third called *BodyText*. By assigning one of these styles to each section of your document, you quickly apply consistent formatting. And if you want to make a documentwide change, you simply change the style definition throughout.

Organizing data. Excellent table-building capabilities come with both word processors. A table is a grid of rows and columns, with each box holding text, numbers, or graphics. You can construct a minispreadsheet using tables (both programs offer basic calculation capabilities); or you can format side-by-side text columns, such as a price list. Since the depth of each row increases automatically to accommodate the text entered, each entry maintains its alignment across the page.

Sharing data. Dynamic Data Exchange (DDE) is a Windows feature that automatically links information in different Windows documents, even if they were created in different applications. Both word processors support DDE, which can streamline the process of placing statistical information in your documents. For example, you can link figures in an *Excel* spreadsheet to a paragraph in your word-processing document. If you make changes to the spreadsheet, DDE automatically updates the figures in your document. The *Word* implementation of DDE works two ways—changing the linked figures in the word processor will alter the spreadsheet automatically—while *Ami* cre-

ates a one-way link. You can incorporate *Excel* charts into your documents using DDE, too.

Automating tasks. Both programs let you record frequently used keystrokes as macros, edit the macros you record, and include extensive macro programming languages (for advanced users). Using macro programming, you can create automated sequences that will perform all the steps required in a complex task, such as taking a product order or preparing a form letter, pausing to ask for input from the person at the keyboard and then performing the appropriate action based on the information entered. Unfortunately, neither program comes with the programming manual required to make full use of the macro languages. You can request the *Ami* macro reference when you register, and it will be provided free. Microsoft charges \$20 for its technical reference manual.

So much for the major shared features of *Ami Professional* and *Word for Windows*. Now let's look at what sets these two programs apart.

About Software Reviews

Our software reviews use shorthand to describe several of the details associated with any package. Hardware, software, and memory are required unless noted as "recommended" or "optional." When more than one computer is listed under "System Requirements," the machine marked with an asterisk () is the type on which the software was reviewed. Requirements are not listed where obvious (for instance, printers with word processors or modems with communications programs). Operating system requirements, such as MS-DOS or the Macintosh System file, are listed only when they're not the standard minimum requirement (DOS 2.0 for IBM PC or compatibles, System 3.2 for the Macintosh, or ProDOS for the Apple II). For those computer systems that can use both 5.25- and 3.5-inch disks (IBM PC and PS/2 or the Apple II), we've listed only those disk sizes that are either supplied with the software or available at no extra cost from the publisher.*

Designation	Models
128K Apple	Ile/Ic/IIGS (in Ile/c mode) and compatibles
128Ke Apple	Ile (enhanced ROM)/Ic/IIGS(in Ile/c mode)
Apple IIGS	IIGS only
IBM PC, PS/2	PC/XT/AT, PS/2 and compatibles
128K Macintosh	128K/512K/512Ke/Plus/SE/II
512K Macintosh	512K/512Ke/Plus/SE/II
512Ke Macintosh	512Ke/Plus/SE/II
1MB Macintosh	Plus/SE/II

Ratings Key			
○	Poor	★	Fair
★★	Good	★★★	Very Good
★★★★	Excellent		

AMI PROFESSIONAL: DESKTOP-PUBLISHING POWER

Of the two word processors, *Ami Professional* feels more like a desktop-publishing program. This is in large part because of its Frames function.

In essence, frames are independent mini-documents, containing a graphic or text, that you insert within your main document. The main document text will automatically wrap around a frame, if you choose, or you can make the frame transparent and let text run right through it to create special effects (you might, for instance, print an oversize version of your company logo underneath the text of a letter). You can enhance the frames with a variety of lines and borders or leave them open sided.

Positioning frames on your page is a snap, too. Placing illustrations in a document offers obvious benefits, but think about the possibilities for text, too. Perhaps you'd like to emphasize a quote within a report. Place it in a frame, use a distinctive typeface, add a border, then position the frame where it will be sure to catch your reader's eye.

Ami accepts graphic files in many formats, including .PCX, .EPS, .PIC, and .TIF. You can also create graphics using *Ami*'s built-in drawing and charting capabilities. The drawing package provides a basic selection of object-oriented graphics tools—they're not going to make dedicated graphics software producers lose sleep, but they are useful for creating call-out labels for an illustration or producing simple images.

More surprising are the program's full-fledged charting capabilities. You can base a chart on figures entered in an *Ami* dialog box or select a range of statistical data from a spreadsheet or database document and copy it directly onto the Windows clipboard. *Ami* will use these figures to create a variety of charts, including pie charts, bar charts, and line graphs, in color or in black and white.

Ami's clear, functional user interface is one of its strongest features. This program is easy to learn, and its customization features let you tailor the system to save time and keystrokes.

The icon bar running down the left side of the screen is a good example of this praiseworthy design approach. There is space for 12 function icons. You select from 48 provided functions, including saving files, applying specific character formats, changing document views, running the spelling checker or thesaurus, adding an index or table of contents entry, and adding a frame. You can even assign macros to icons.

Another example of design smarts is the use of function keys to apply styles to text. You can choose styles from a menu box if you want, but you can easily assign fre-

They Left out Features.... We Left out the **COMMA!!**

The only thing missing...

is the comma in the price. If you look at the chart on the right you will see prices charged by our competition. All but one contain a comma. **DesignCAD 3D** sells for \$399.00. Period. No Comma!

In order to draw the complex pictures shown below it is desirable to have the following 3D features:

- Interactive design with 3D cursor
- Blending of surfaces
- Boolean operations such as add, subtract, and intersection
- Complex extrusions
- Cross sectioning
- Block scaling
- On screen shading
- Shaded output to printers and plotters

All of these competitors left out one or more of these desirable features in their standard package. They didn't forget the most horrible feature - the comma.

DesignCAD 3D offers **ALL** the listed features plus many more!

If **DesignCAD 3D** has the power to create the 3D objects shown below, imagine how it could help with your design project!

DesignCAD 3D sells for \$399. We left out the comma. We didn't think you would mind!

PC MAGAZINE SAYS...

DesignCAD 3D, the latest feature-packed, low-cost CADD package from American Small Business Computers, delivers more bang per buck than any of its low-cost competitors and threatens programs costing ten times as much. For a low-cost, self-contained 3D package... DesignCAD's range of features steals the show."

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DesignCAD 3D ver. 2.0	\$ 399.00	NO expensive options! IGES Free, Shading Free
MaxxiCAD 1.02	\$ 1,895.00	N/A
Mega Model	\$995.00	MegaDraw \$195, List \$295, MegaShade \$395
MicroStation PC 3.0	\$ 3,300.00	Customer Support Libraries \$1,000.00
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VersaCAD Design 5.4	\$ 2,995.00	N/A

Source: Byte Magazine

BYTE MAGAZINE SAYS...

"At \$399, DesignCAD 3D was the least expensive package we saw, yet it was one of the more powerful. ..Don't be fooled by the remarkably low price, this program can really perform!"

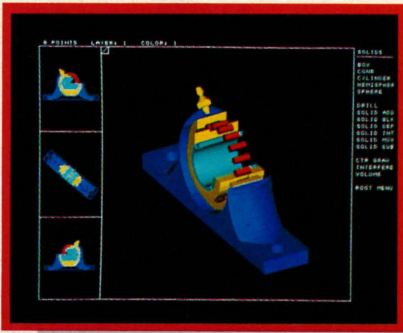
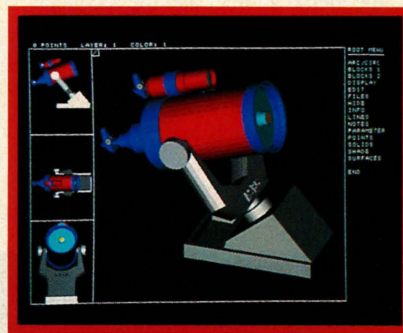
Complete 3-Dimensional design features make it easy for you to construct realistic 3-D models. With full solid-object modeling capabilities you can analyze your drawing to determine the volume, surface area or even center of gravity! **DesignCAD 3-D** even permits you to check for interference between objects! Aeronautical Engineers can now find the center of gravity for a new airplane design with a couple of keystrokes. The Architect can determine the surface area of a roof for decking in a matter of minutes. The Civil Engineer can calculate the volume of a lake or dam in seconds. The Mechanical Engineer will know for sure if certain parts fit together without interference. The uses for **DesignCAD 3-D** are only limited by YOUR imagination!

HOW DO I GET ONE?

DesignCAD 3-D and **DesignCAD 2D** are available from most retail computer stores, or you may order directly from us. If you have questions about which program to purchase please give us a call. All you need to run **DesignCAD 3-D** is an IBM PC or compatible computer with 640 K RAM memory and a hard disk. Both products support most graphics cards, printers, plotters and digitizers. Free Information and a demo disk are available by faxing (918) 825-6359 or telephoning:

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quently used styles to your function keys and format paragraphs with a single keystroke. *Easily* is the key word in that statement—setting up the style sheets, icon bars, and other customized shortcuts is as simple as making choices from dialog boxes.

WORD FOR WINDOWS: A MOST CAPABLE WORD PROCESSOR

When compared with *Ami*, *Word* offers several additional features—at the price of simplicity. If you are willing to devote the time required to master *Word*, though, you'll be using what I consider the most capable business word processor on the market today.

For example, one of *Word*'s sample files is a memo template. Each time you load this automated template, dialog boxes appear asking for key information—the author's name, the memo's topic, and the recipients' names. Inserting the date in the appropriate spot, the template creates the entire memo header. Following the provided instructions, I adapted this template to create a standard billing form that prompts me for the specific information required and produces a completed bill, with totals, ready to print.

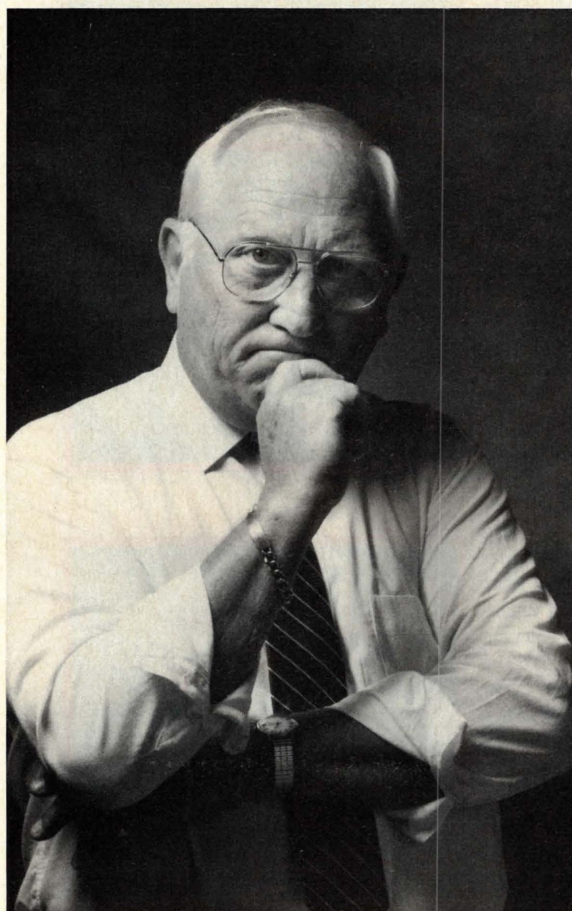
Another useful document feature is the Bookmark—a named section of text. You can jump quickly from one spot in your document to another by telling the program to go to an established bookmark. Both *Ami* and *Word* support this function; however, *Word* also uses bookmarks to create cross-references. If you insert a table in a proposal and want to refer to it later on, just give it a bookmark name. When you write, "See the table on page X" later in your document, instruct *Word* to automatically insert the proper page number and update it as you add text.

I particularly like *Word*'s annotation functions. Annotations are basically a separate class of footnotes. As a reader goes through an on-screen document, he or she can insert comments. Markers indicate comments in the text, and they're displayed in a separate window, complete with the reader's initials. Optionally, the author may lock out changes to the document, restricting the reader to annotations. That way, if a document must be reviewed by several people, the original text remains unaltered and the author can sift through the annotations to make the appropriate revisions.

Where *Ami* provides a customizable icon bar, *Word* lets you customize the drop-down menus—adding, moving, or removing commands and even macros. You may find this feature especially useful if someone helps you out with clerical tasks. By customizing the system, you can prepare canned procedures to produce standard documents—such as my new billing process—and make them easily accessible with a single menu selection.

Two optional on-screen formatting shortcuts, the Ruler and the Ribbon, save time. You can choose to display either, neither, or both of these screen-width bars at any time. The Ruler provides choices of paragraph styles, justification, spacing, and tab settings. The Ribbon provides font choices and the ability to show or hide the paragraph, tab, and space marks within your text. These point-and-click devices save lots of trips to the drop-down menus.

Word is surprisingly short on graphics-file format compatibility. You can cut-and-paste images from another *Windows*-based graphics program or directly import .TIF images, but the most widely used illustration-program file formats are not supported.



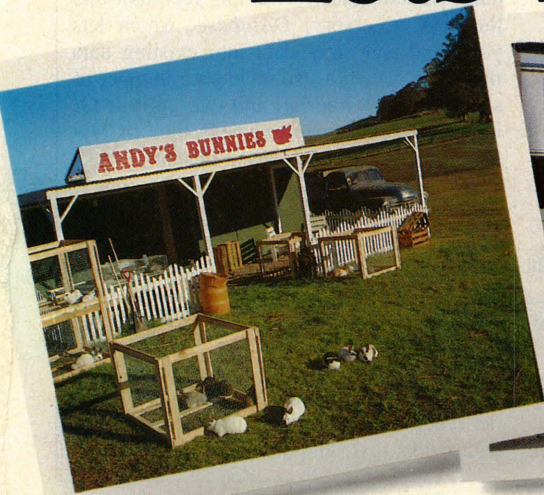
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Some people don't yet understand the advantages of having a stand-alone fax machine that connects directly to your computer. We could explain the advantages of being able to fax directly from within any application. And we could discuss the merits of using the machine as a scanner for page layout and OCR applications. We could even talk about the ability to use it as a 200 dpi printer. But to be honest, the easiest way to understand it is to see it. So, if you call 1-800-735-4797 we'll send you a demo that shows you a little more about what our Tefax and your PC can do for you and your business.

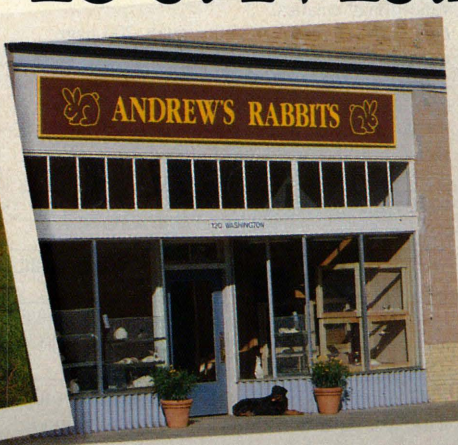


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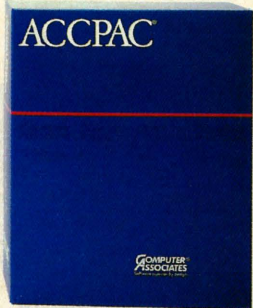


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You can position text blocks or graphics freely on the page, but the procedure is more complex and less flexible than *Ami*'s frame-based system.

AND THE WINNER IS . . .

Frankly, I enthusiastically support both of these programs. The choice really comes down to two factors—the type of word-processing projects you tackle and the amount of technical dabbling you are willing to undertake.

I find *Ami* a substantially friendlier program, both while learning and in everyday use. It's certainly my recommendation if you're planning to incorporate graphics from a range of sources into your documents (though I strongly suspect Microsoft will beef up its graphics import capabilities in its next release).

Word for Windows is more intimidating but offers helpful features that *Ami Professional* lacks. *Word for Windows* also shines in a multiuser environment, with its macro-driven procedures and exemplary handling of comments. For the so-called power user, I don't know of another word processor that can match *Word for Windows*.

—STEVE MORGENSTERN

Mac Database Desk Accessory with Graphic Extras

DAtabase

Rating: ★ ★ ★

AT A GLANCE: Easy to use, can be called up from within any application, includes many graphics tools. However, no relational capabilities or advanced mathematics.

DOCUMENTATION: Well-written 200-page manual.

ERROR HANDLING: Very good, with descriptive error messages and many safeguards.

EASE OF USE: Very good because of intuitive menu selections and simple procedures.

SUPPORT: Toll-free, quick, accurate.

VERSION REVIEWED: 1.1

PRICE: \$130

SYSTEM REQUIREMENTS: 512Ke Macintosh; hard-disk drive; System 6.0 or higher

PUBLISHER: Preferred Publishers, 5100 Poplar Ave., Suite 617, Memphis, TN 38137; (901) 683-3383

DAtabase is, as far as I know, the only database desk accessory. Its main advantage over a stand-alone program is that it's there

when and where you need it. Let's say, for example, that you've created a database of sales contacts. When a new prospect calls in response to your advertising, you can just call up the program as you talk and add the name and address directly to your contact file. There's no need to write it down on paper or to exit your current application—very handy.

The program consists of two basic modules: *DAtabase Builder*, for creating flat-file database templates (the empty records), and the desk accessory, *DAtabase*, which lets you open and enter data into existing data files. The package also includes a number of sample files, a tutorial, and two utilities for importing and converting text files or *HyperCard* data into *DAtabase* format.

DAtabase Builder's tools give you control over your record makeup. An invisible grid—called a snap-to grid—automatically lines up the elements (such as fields for date, name, address, and so on) that you place on your record templates. The handy Push option moves any selected object in tiny increments, making fine adjustments a cinch. Design options can include two border types and can contain up to five kinds of data fields: text, graphic (in PICT, encapsu-

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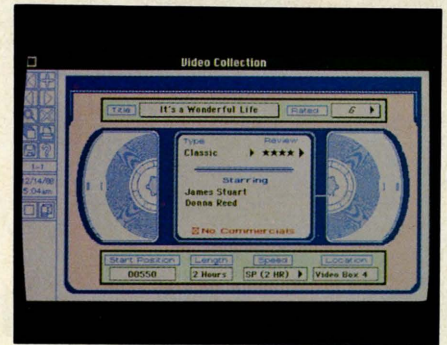
lated PostScript, or bit-mapped *MacPaint* formats), calculated, checkbox, and pop-up lists.

Once you've created your template, you're ready to enter data. You can even configure the program so that it will give you a menu of up to 60 of your *DAtabase* files, so you don't have to hunt for them. If you like, you can select a file to be automatically opened upon calling up the program.

Calculations in *DAtabase* are limited to the four basic arithmetic functions. If you need more complex mathematics—such as interest rates, number rounding, averages, standard deviations, and the like—you'll

probably have to go to a full-featured database. But for routine arithmetic calculations, *DAtabase* does a fine job. Other gratifying aspects of the program include an automatic date and time stamp on each record (which tells you when the record was last changed) and a multiple-field sorting capability.

It takes no time to learn how to import to and export from *DAtabase*. *DAtabase Converter*, the import utility, uses simple commands to bring in a text file, merge two existing *DAtabase* files, or convert data in the Scrapbook to a *DAtabase* file. Exporting is also a snap. There's a simple command



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that lets you set the field delimiters (a character, such as a Tab, that signals the beginning and end of a field once the file has been converted to ASCII text) to match the software with which you will use the exported data. You can also have *DAtabase* add in the correct characters to match your word-processing program's mail-merge utility.

DAtabase also lets you catalog and store clip art or other graphics. If you like, you can even crop and select portions of images for use in other programs. One really unusual feature is *DAtabase*'s Browse mode, which lets you flip through data fields, including monochrome or color graphics, in a timed sequence. With this feature, you can even set up a small flip-chart slide show that automatically runs through a group of pictures and text.

Documentation consists of a help file, along with a 200-page-plus manual. The first 46 pages, however, are filled with rather elementary information about how to use the Macintosh.

The program has descriptive, clear error messages. Also, if you like, you can set *DAtabase* to ask for confirmation of all data deletions, a handy safeguard. An Auto Save option is also a nice touch that can be a lifesaver when the lights flicker.

DAtabase is so easy to use that you probably won't need much in the way of technical support. But if you do, the call is toll-free. My questions were answered quickly and accurately.

A new version of *DAtabase*—1.5—should be on the shelves by the time you read this. Promised changes are higher speed, more printing functions, and the ability to search and sort on dates.

DAtabase packs a lot of power into a convenient desk accessory—at an affordable price. If your data-handling needs are relatively straightforward, this program may be just what you need. For heavier needs, *DAtabase* can function as a handy data-entry tool for your full-scale database. It's easy to use, and you'll have no problem transferring your files into *Odesta Helix*, *Microsoft FileMaker II*, or any other Mac database.

—ROGER HART

SOFTWARE QUICK TAKES

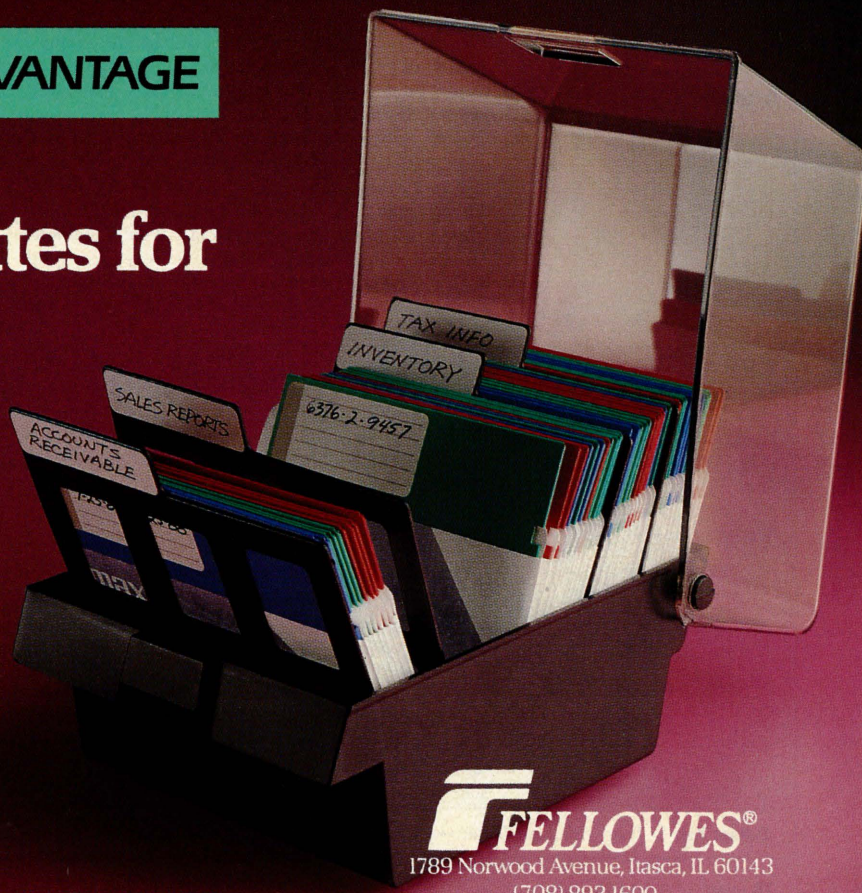
TITLE/PUBLISHER/ PRICE/VERSION/RATING	SUMMARY	SYSTEM REQUIREMENTS
Graph-It! Timeworks, Inc. 444 Lake Cook Rd. Deerfield, IL 60015 (708) 948-9202 \$50 v1.0 Rating: ★ ★	Transform spreadsheet data into line, column, 3-D column, bar, area, and scatter charts with <i>Graph-It!</i> . Either input data directly or import it from any program that produces ASCII output. Unfortunately, the program does not read non-ASCII <i>AppleWorks</i> spreadsheet files—inconvenient. The manual includes an excellent section on what types of charts are best suited to certain sets of data. Publisher offers a 90-day, money-back guarantee. <i>—Philip Chien</i>	128K Apple. Mouse recommended. 5.25- or 3.5-inch.
Readability Plus Scandinavian PC Systems 51 Monroe St., #1101 Rockville, MD 20850 (301) 294-7453 \$95 v1.2B Rating: ★ ★	Not a grammar or style checker, <i>Readability Plus</i> analyzes writing for sentence and word length, number of polysyllabic words, and sentence structure. Can import and analyze any ASCII file. While this program may be helpful for lawyers, technical writers, or those who write government publications or textbooks, it may not be of much use to the average business writer. <i>—Lisa Kleinholz</i>	256K IBM PC, PS/2. Two drives (hard-disk drive recommended). CGA, EGA, or VGA optional. 5.25- or 3.5-inch.
Diskette Manager III Bloc Publishing Group 800 SW 37th Ave., Suite 765 Coral Gables, FL 33134 (305) 445-0903 \$60 v1.0 Rating: ★ ★ ★	Simple but effective disk-labeling program lets you attach a name, date, type, serial number, and eight-line comment to your disk, then prints out a label with that information. <i>Diskette Manager III</i> also lets you keep a catalog of the files on up to 500 disks that you've labeled. It will also keep track of the time and date the label was created. Includes extensive searching and reporting capabilities. My only criticisms are an overly technical and poorly organized manual and confusing report screens. <i>—Lisa Kleinholz</i>	256K IBM PC, PS/2. DOS 2.1 or higher. 5.25- and 3.5-inch.
Ratings Key: ○ Poor; ★ Fair; ★★ Good; ★★★ Very Good; ★★★★ Excellent		

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SOFTWARE REVIEWS

SOFTWARE FOR LEARNING AND LEISURE

TITLE/PUBLISHER/ PRICE/RATING	SUMMARY	SYSTEM REQUIREMENTS	COPY PROTECTION/ AGES (EDUCATION)
Where in Time Is Carmen Sandiego? Broderbund Software 17 Paul Dr. San Rafael, CA 94903 (415) 492-3200 \$45 Rating: ★ ★ ★	<p>Carmen Sandiego and her notorious coterie are on the loose again! This time, however, the gang's not staying in the twentieth century. Instead, they're traveling back in time (as far as A.D. 400) to wreak havoc on historic peoples and cultures. Your task is to track down the criminals and retrieve the stolen booty.</p> <p><i>Where in Time</i> is as inspired as the other programs from this series. In the process of hunting down clues in the encyclopedia, kids learn to do investigative research. They also discover important facts about historical events and famous personalities while being entertained by colorful graphics and amusing sound effects. The program holds interest for both children and adults. —Carol S. Holzberg</p>	512K IBM PC, PS/2*. Two drives (hard-disk drive recommended). CGA, EGA, VGA (requires 640K), or Hercules. Mouse or joystick optional. 5.25- and 3.5-inch. Also for 128K Apple.	<i>Copy Protection:</i> Yes <i>Suggested Ages:</i> 12–adult
Super Solvers Midnight Rescue The Learning Company 6493 Kaiser Dr. Fremont, CA 94555 (415) 792-2101 \$50 Rating: ★ ★ ★ ★	<p>Morty Maxwell, the Master of Mischief, wants to make Shady Glen School disappear by midnight. Members of the Super Solvers Club must track him down before the bewitched hour in order to save the school. So grab your trusty camera and your clue-uncovering reading glass, and start the search. Morty is disguised as a robot and hiding out in the building somewhere.</p> <p><i>Super Solvers Midnight Rescue</i> is a great way to have fun while strengthening reading comprehension skills. Even adults will enjoy trying to nab Shady Glen's super villain. If you persevere, Morty will be history! If you fail, Shady Glen fades away under a can of disappearing paint. —Carol S. Holzberg</p>	512K IBM PC, PS/2 (640K for Tandy with enhanced capabilities). CGA, EGA, VGA, or Hercules. 5.25- and 3.5-inch.	<i>Copy Protection:</i> No <i>Suggested Ages:</i> 7–14
The Puzzle Gallery: At the Carnival Miles Computing, Inc. 5115 Douglas Fir Rd., Suite 1 Calabasas, CA 91302 (818) 340-6300 \$40 Rating: ★ ★	<p>Loop-O-Puke, Rabid Rat, and Alpine Upchuck are a few of the attractions you'll encounter in <i>The Puzzle Gallery: At the Carnival</i>—a collection of puzzles guaranteed to exasperate even the most avid game players. The name of the carnival is Hazard Park, and an attempt at any of its 40 attractions (made up of several puzzles each) will convince you that it is aptly named. You navigate your way through the park by solving crossword puzzles, word jumbles, complex codes, word searches, and complicated polygons (there are 180 puzzles in all).</p> <p>After getting past the first series of puzzles, I became frustrated with <i>Puzzle Gallery</i> and vowed never to play it again. I kept saying the same thing, even though I continued to spend many a late hour trying to figure out why the line moves so fast at the Rabid Rat. The final animation sequence, by the way (yes, I did finally finish the game), isn't worth the time spent to get there. So play <i>Puzzle Gallery</i> for the sake of the puzzles themselves or not at all. —Paul Griffiths</p>	1MB Macintosh Plus. Two drives (hard-disk drive recommended). Color monitor optional.	<i>Copy Protection:</i> No
Welltris Spectrum HoloByte 2061 Challenger Dr. Alameda, CA 94501 (415) 522-1164 \$35 Rating: ★ ★ ★ ★	<p>In <i>Welltris</i>—as in <i>Tetris</i>, the best-seller by the same Russian developer—you deal with game pieces as they fall down a playing surface, one by one. But now, instead of one wall to deal with, you have four. You play as if you were looking down into the bottom of a well (hence the name). The falling pieces are three-dimensional geometric shapes, each composed of different combinations of square blocks.</p> <p>As the pieces fall, you move and rotate them to fit perfectly into the spaces left by the pieces that you have already dropped into the well's bottom. When you have filled a line on the bottom, the pieces disappear and you earn points. But believe me—this process is far more difficult than it sounds.</p> <p>If you don't place the pieces precisely, they'll begin to block the walls. If all the walls become blocked, you lose. Be warned: The minutes with <i>Welltris</i> will turn into hours if you aren't careful. It's a lot easier to start than it is to stop. —Rich Sheffield</p>	256K IBM PC, PS/2, CGA, EGA, VGA, or Hercules. 5.25- and 3.5 inch.	<i>Copy Protection:</i> No
Ratings Key: ○ Poor; ★ Fair; ★★ Good; ★★★ Very Good; ★★★★ Excellent			

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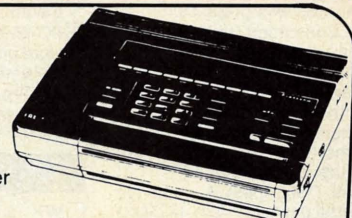
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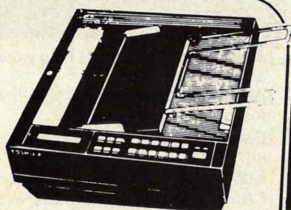
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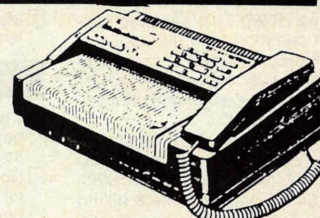
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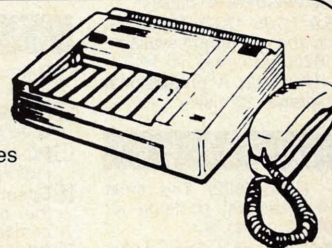
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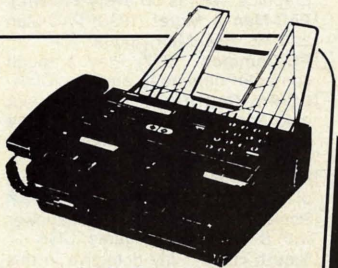
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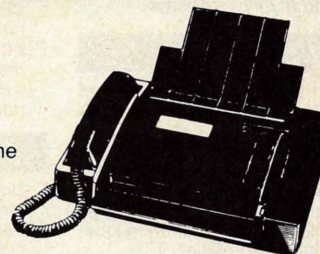
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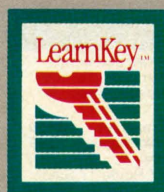
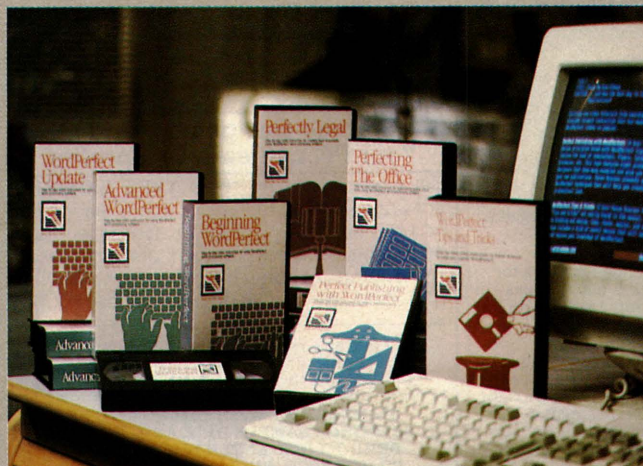
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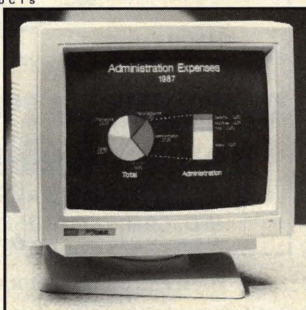
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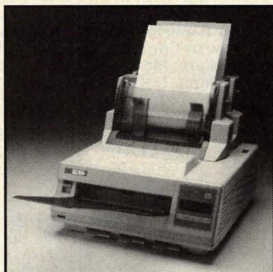
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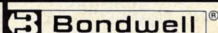
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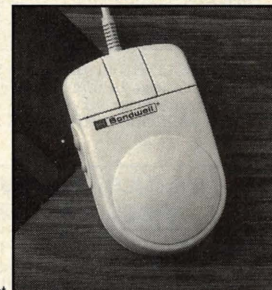
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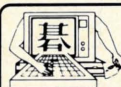
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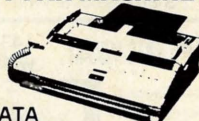
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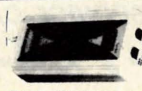
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How to Commute at the Speed of Light

BY NICK SULLIVAN



In Seattle, recently voted one of the country's most livable cities, rush-hour traffic moves across Evergreen Point Bridge at nine miles per hour. A horse and buggy could beat that. Rush "hour" lasts three hours each afternoon. As David Bowie, who played the disfigured character in *The Elephant Man* on Broadway, asked in a painful wail: "This is what is life?"

Yes, it is life in the late twentieth century in the country's most and least desirable cities. Sitting amid tons of smoking heavy metal in gridlock is obviously not fun for office workers, who spend the equivalent of four weeks a year in this grim situation. Nor is it good for Puget Sound businesses, which report congestion as the biggest barrier to growth. Nor is it good for the environment, as each car produces its own weight in carbon dioxide each year.

The automobile, which gave Americans the ability to live, work, and visit wherever they wished, is now forcing people to live where they ain't, to paraphrase Shoeless Joe Jackson. My aunt, for example, who has lived in the Los Angeles area all her life, is leaving the state because she gets headaches from her freeway commute. "All people talk about in L.A. is how they're going to get out of here," says my aunt.

Fortunately, in this year of environmental awareness, when people are planting trees and donning Earth Day '90 T-shirts, local, state, and federal governments are beginning to take action to reduce total car-miles driven and improve worker productivity.

The city of Los Angeles and the states of California and Washington all have pilot telecommuting projects underway. The federal government is starting the Flexible Workplace Project to test the feasibility of telecommuting and telework. Sponsored by the President's Council on Management Improvement, the project is driven by today's technology and growth in the service sector;

NICK SULLIVAN is a senior editor of HOME-OFFICE COMPUTING who telecommutes to the magazine's New York office from his home in Massachusetts.

"Millions have found their productivity increases when they work nearer the people they're really working for—their families at home."

—PRESIDENT BUSH

the increase in two-income and single-parent households; suburban sprawl and traffic gridlock; and global competition, which makes it important for American employers to reduce costs and increase efficiency.

In the last two months, President Bush has thrown his weight behind these programs, encouraging private employers to hop on the bandwagon. In an address to the California Chamber of Commerce, Bush said that if only 5 percent of the commuters

in L.A. County telecommuted one day each week, they'd keep 47,000 tons of pollutants from entering the atmosphere. "So telecommuting means saving energy, improving our air quality and quality of life," he concluded. "Not a bad deal." (See "Bush Backs Telecommuting" on page 8 of the May issue.)

The President hit on the same topic from a different angle a few weeks later, speaking at the National Transportation Policy Meeting. "Sometimes the best transportation policy means not moving people, but moving their work. Millions have already found their productivity actually increases when they work nearer the people they're really working for—their families at home.

"The benefits in reducing congested highways and mass transit are obvious. Think of it as commuting to work at the speed of light."

Today, about 90 percent of the nation's 1 to 2 million telecommuters are "guerrillas," according to Brad Schepp, author of *The Telecommuter's Handbook*. These guerrillas, who wear fatigues at home and suits when they go into the offices of such companies as Sears-Roebuck, Pacific Bell Telephone, New York Life, John Hancock Mutual Life Insurance Company, JC Penney, and IBM, have made private arrangements with their immediate supervisors to work two or more days a week at home.

Guerrilla telecommuting may benefit a particular company or employee, but it won't help society much. There just aren't enough people involved to significantly reduce the number of total miles driven. That's why the various formal plans now underway hold so much promise, and why it's so important that the president continue to build awareness of telecommuting's benefits to employers, employees, and the environment.

Telecommuting is one federal initiative that won't cost the government money. Many people already have the equipment and skills to conduct their jobs from virtually anywhere. We just need a signal, a direction, and perhaps some incentives. How about a set of regulation horseshoes for everyone who works at home three or more days a week? That's the kind of heavy metal I like. ■

RESOURCES

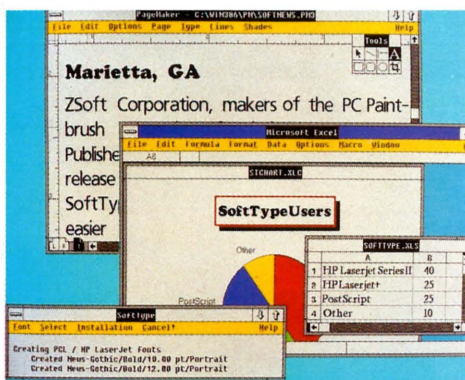
Telecommuting: An Alternate Route to Work. To order the prospectus for the Puget Sound Telecommuting Demonstration, call or write Catherine Williams or Dee Christensen, Washington State Energy Office, 809 Legion Way SE, FA-11, Olympia, WA 98504-1211; (206) 586-5000.

The Telecommuter's Handbook: How to Work for a Salary Without Ever Leaving the House by Brad Schepp, Pharos Books, \$9.95. Outlines jobs best suited to telecommuting, companies that allow employees to work from home, and equipment and information sources you'll need. Also includes a sample dialogue between you and your boss, in which you propose to telecommute.

The One-Minute Commuter: How to Keep Your Job and Stay at Home Telecommuting by Lis Fleming, ACACIA Books, 1309 Redwood La., Davis, CA 95616; (916) 753-1519, \$9.95. Outlines telecommuting's benefits to employees and employers; includes tests that indicate whether you and your job are suited to telecommuting.

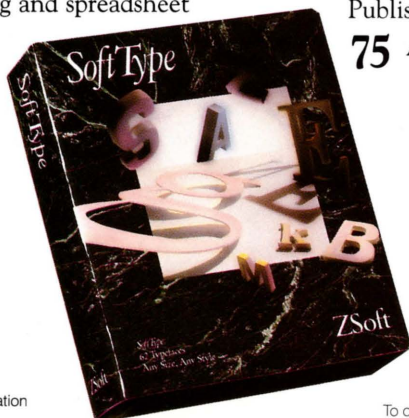
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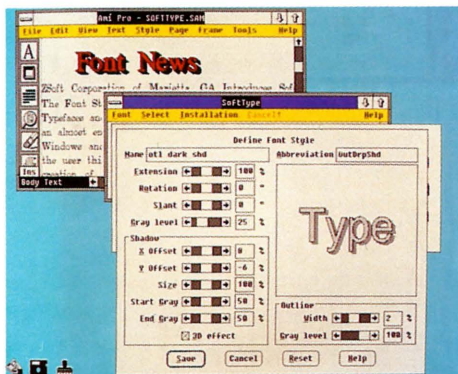
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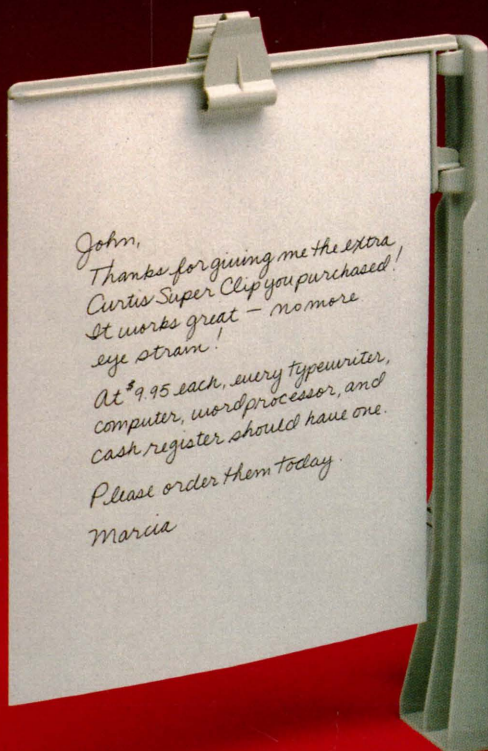
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